LUPTON

STEEL PRODUCTS

DAVID LUPTON'S SONS CO., PHILADELPHIA

Details and Specifications as they appeared in Sweet's Architectural Catalogue for

1930

See Lupton Page 2 for complete pictorial index

Lupton Branch Offices

Atlanta
Boston
Buffalo
Chicago
Cleveland
Dallas
Detroit
Los Angeles
Newark
New York
Pittsburgh

Separate literature will be mailed free upon request.

WHERE STEEL IS FUSED WITH SINCERITY

A.I.A. File Number 16

Lupton

Products

Sales Representative

[ ]

David Lupton's Sons Company

Allegheny Ave. & Tulip St.

Philadelphia

LUPTON STEEL CASEMENTS—HEAVY TYPE

Lupton Casements were designed for use in monumental buildings, educational buildings, public libraries, banks, fine residences, club houses, first class hotels and office buildings and all other buildings of the same general character. Lupton Casements are the highest form of steel window construction and are made in sizes specified by the architect. Pages following list various types of ventilator operation and show construction details. Lupton will gladly co-operate by submitting tentative designs and finished drawings.

Side Hinged Ventilators

Maximum Size (Approximate)
Single Casements
Width 2 ft. 9 in. Height 8 ft. 0 in.
Double Casements
Width 5 ft. 6 in. Height 8 ft. 0 in.

Hinged ventilators have solid bronze butts with steel pins or when specified, solid bronze friction hinges are furnished. Double casements are equipped with Cremone Bolts; single casements with Cam handles. Sliding adjusters are used at the sill except where ventilators are equipped with friction hinges. In severe climates swing-out type should be used in preference to swing-in or vertically pivoted. In addition to its superior weathering, the swing-out casement, when open, does not interfere with draperies.

Projected Ventilators

Maximum Size (Approximate)
Projected-In-at-Top or Projected-Out-at-Bottom
Width 4 ft. 6 in. Height 2 ft. 6 in.
Projected-Out-at-Side
Width 2 ft. 6 in. Height 5 ft. 0 in.

Projected ventilators are held open without adjusters or stay bars by an adjustable bronze friction shoe. Locking device is Cam handle, or spring catch and pull down for pole operation. Projected-in-at-top or projected-out-at-bottom ventilators are mostly used for transoms or wherever a wide shallow panel is to be operated. Projected-out-at-side can be used, instead of side hinged or vertically pivoted.

Pivoted Ventilators

Maximum Sizes (Approximate)
Vertically Pivoted
Width 4 ft. 3 in. Height 8 ft. 0 in.
Horizontally Pivoted
Width 4 ft. 6 in. Height 4 ft. 6 in.

Vertically pivoted ventilators are not recommended except where the desired width is too great for a side hinged ventilator. For both vertically and horizontally pivoted ventilators, peg and stay is furnished at the sill.

Locking is by means of a Cam handle for vertically pivoted.

On horizontally pivoted ventilators the stay bar serves as a lock.

Top Hinged and Bottom Hinged Ventilators

Maximum Size (Approximate)
Width 5 ft. 6 in. Height 4 ft. 0 in.

These are used mostly for transoms or where mechanical operators are to be used. They should never be used where it is possible to substitute projected or horizontally pivoted ventilators.

Muntins

All the above types of ventilators as well as stationary lights may be had with muntins.

General

Mullion and impost bars permit combining two or more types of units to form a composite window.

Frames of 12 gauge steel plate may also be used for this purpose (see pages 9 and 10).

Case hold adjusters (friction adjusters) may be used on hinged or pivoted ventilators.

We will co-operate in working out details for mechanical operators when these are required.

Note: When viewed from the *outside* a left-hand casement swings in or out from right to left and a right-hand casement swings in or out from left to right.

SKETCH "A"

Correct Glazing Method

All side hinged vents will eventually sag and rub on the bottom frame rail unless the following correct glazing method is used.

1. Check window to see that vent seats properly and that outer frame has not been twisted or sprung in masonry opening.
2. Bed vent frame with putty.
3. Set wood wedge and glass in position in vent frame as shown in Sketch "A."
4. Open and close vent several times to seat glass.
5. Open the vent slightly and with a chisel or other lever placed between bottom of vent and frame of window at point (2) Sketch "B" spring entire vent upward. This will open up the space between vent and glass at point (3) Sketch "B." Insert another wood wedge at point (3) before pressure is released on the lever.

6. Wedges must be tight and are left permanently in place.

Puttying can now be completed or glazing beads attached.

Glass lights should be blocked with wood between glass and glass rests, and between glass and moulding so that wind pressure will not squeeze out putty.

SKETCH "B" (EXAGGERATED)

Continued on next page

SPECIFICATION FOR LUPTON STEEL CASEMENTS—HEAVY TYPE

Work Included

1. Furnish and install where shown on drawings, Lupton Steel Casements (Heavy Type) as manufactured by DAVID LUPTON'S SONS CO., Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate for the architect's approval complete shop drawings. These shall show sections of frame members, details of construction, hardware, anchoring, etc.

Materials

3. Frame and Ventilator members shall be made of copper-bearing, rust-resisting steel specially rolled in solid, one-piece sections. Bars shall be straightened and sand-blasted.

4. Muntins shall be specially designed steel T bar section.

5. Vertical mullions shall be specially designed steel H section.

6. Imposts shall be specially designed steel lug bars.

Note: Two sizes of lug bars are standard, the width of the section being 4 in. for the large bar and 2½ in. for the small one. The large bar is used for the larger multiple unit casement windows.

Construction

7. All casement windows shall be designed for inside glazing, with metal glazing stops.

8. All casement windows shall be straight and true, members in alignment and surfaces in a plane.

9. Ventilator and Frame Members shall be mitered at corners and solidly butt welded. Exposed welded surfaces shall be ground flush with members. The frame and ventilator shall form a two-point, flat, continuous, weathering contact.

10. Muntin Bars shall be continuous from top to bottom and from side to side between frame members or ventilator members. They shall be attached to frame members or ventilator members by tenoned, riveted joints and shall be interlocked and welded at their intersections so as not to decrease their ultimate strength.

11. Mullions shall be provided and bolts for attachment wherever two or more units are placed side by side in an opening.

12. Imposts shall be provided and bolts for attachment wherever two or more units are placed one directly above the other in an opening.

13. At the head of all open out ventilators a No. 16 gauge formed steel hot galvanized weather bar shall be used, except when condition necessitates the use of the lug bar, the lug bar shall be bent and used as weathering bar.

Note: (a) No. 12 gauge steel fins are furnished only when specified, at slight added cost.

(b) No. 14 gauge steel sill and jamb anchor clips are furnished only when specified.

Glazing Stops

14. Glazing stops shall be of detail shown on window manufacturer's standard drawings and shall be made of drawn rolled steel. All stops shall be accurately coped and fitted.

Note: See details on pages 11 and 12.

Hardware

15. Solid bronze hinges with steel pins shall be attached to all side-hinged casements and painted with casements in factory. Additional solid bronze hardware, as listed below shall be fitted in shop and shipped unattached carefully packed to prevent damage until applied for use.

Note: Solid bronze friction hinges are furnished, when specified, in place of butt hinges.

Note: The following hardware is available, list the types required.

For Double Casements (Side Hinged—Open Out)

Sliding adjusters (not used with friction hinges).

Cremone bolt and pull handle.

For Single Casements (Side Hinged—Open Out)

Sliding adjuster (not used with friction hinges).

Single locking device (ventilators up to 4 ft. 0 in. in height).

Double locking device (ventilators up to 8 ft. 0 in. in height).

Triple locking device (ventilators over 8 ft. 0 in. in height).

For Double Casements (Side Hinged—Open In)

Sliding adjusters.

Cremone bolt and pull handle.

For Single Casements (Side Hinged—Open In)

Sliding adjusters.

Single locking device (ventilators up to 4 ft. 0 in. in height).

Double locking device (ventilators up to 8 ft. 0 in. in height).

Triple locking device (ventilators over 8 ft. 0 in. in height).

For Vertically Pivoted Ventilators

Peg and stay adjuster.

Single locking device (ventilators up to 4 ft. 0 in. in height).

Double locking device (ventilators up to 8 ft. 0 in. in height).

Triple locking device (ventilators over 8 ft. 0 in. in height).

For Horizontally Pivoted Ventilators

Peg and stay adjuster.

For Projected Ventilators—Projected-Out-at-Bottom

Within reach from floor—Cam handle.

Beyond reach from floor—Spring catch handle and pull down for pole operation.

For Projected Ventilators—Projected-In-at-Top

Within reach from floor—Cam handle.

Beyond reach from floor—Spring catch for pole operation.

Calking Cement

16. The window manufacturer shall furnish non-staining elastic calking cement (as indicated on window manufacturer's standard details) in quantities sufficient to make head, sill, jambs, mullions and imposts weathertight. Wooden filler-strips shall be furnished and used where indicated on details.

Erection

17. All Casement Windows shall be erected in prepared openings by the window contractor (unless otherwise specified).

18. All Casement Windows shall be set plumb and true, properly aligned and securely anchored before glazing. Mullions and imposts shall be bolted securely to frames. Calking cement and wooden filler-strips shall be neatly applied at points indicated on window manufacturer's standard details.

Note: Include in the masonry specifications that all masonry openings shall be accurately constructed in accordance with the installation details for Casement Windows. All grouting, pointing, etc., should be done by the mason contractor after the windows are set.

Glass and Glazing

Note: (See also page 1). Specify glass and glazing under proper heading elsewhere in general specifications of other trades.

(a) Do not specify single thickness glass.

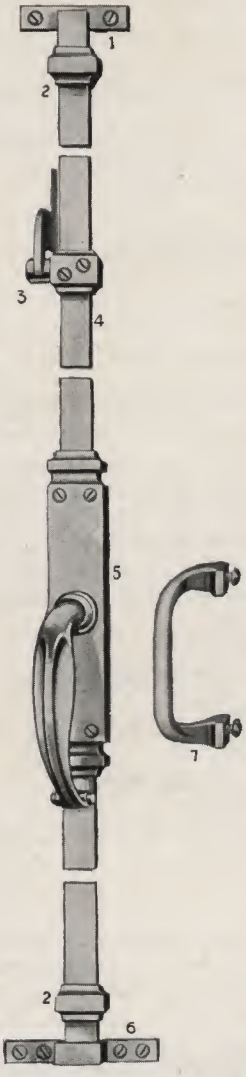
(b) Specify a high grade steel casement putty.

(c) Specify that all casement windows shall be glazed from the inside, the glass set in a bed of putty and held by the Lupton metal glazing stops.

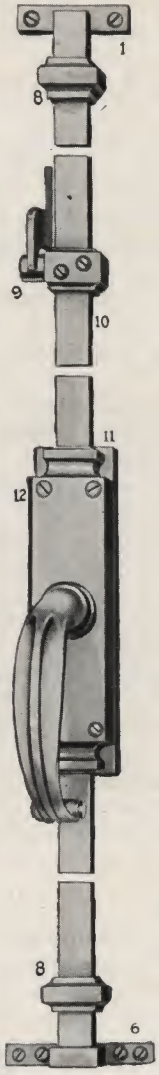
Continued on next page

HARDWARE FOR LUPTON STEEL CASEMENTS—HEAVY TYPE

All hardware numbers are for solid bronze hardware highly polished, unless noted otherwise. Cam handles, latches and spring catches are mounted either on the ventilator section or on steel plates welded to the ventilator



Bolt for Casements Up to 7 ft. High



Bolt for Casements Over 7 ft. High

Cremone Bolts for Double Casements

Consists of the following:

1. **Keeper No. 291**
   Used at top and bottom of swing-out casements

   Or

6. **Keeper No. 285**
   Used at top and bottom of swing-in casements

2. **Bar Guide No. 293**
   Spaced approx. 1 ft. 0 in. apart

3. **Center Latch and Keeper**
   No. 286 above handle
   No. 292 below handle
   Spaced approx. 2 ft. 0 in. apart

4. **Bronze Bar ½x¼ in.**

5. **Handle and Case No. 290**

7. **Pull Handle No. 237**

Consists of the following:

1. **Keeper No. 291**
   Used at top and bottom of swing-out casements

   Or

6. **Keeper No. 285**
   Used at top and bottom of swing-in casements

8. **Bar Guide No. 340**
   Spaced approx. 1 ft. 0 in. apart

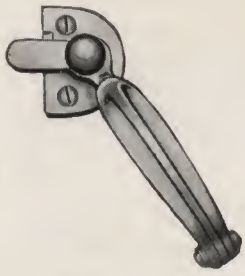
9. **Center Latch and Keeper**
   No. 337 above handle
   No. 338 below handle
   Spaced approx. 2 ft. 0 in. apart

10. **Bronze Bar ⅝x¼ in.**

11. **Malleable Iron Base Plate No. 146**

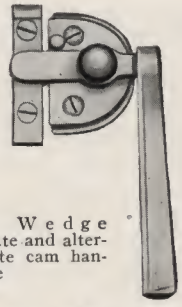
12. **Handle and Case No. 256**

7. **Pull Handle No. 237**



Cam Handle

No. 218 shown (opposite hand No. 219)
Used on side-hinged or vertically pivoted casements up to 4 ft. 0 in. high



Wedge plate and alternate cam handle

Wedge Plate No. 221

Used on side-hinged swing-out casements or vertically pivoted casements

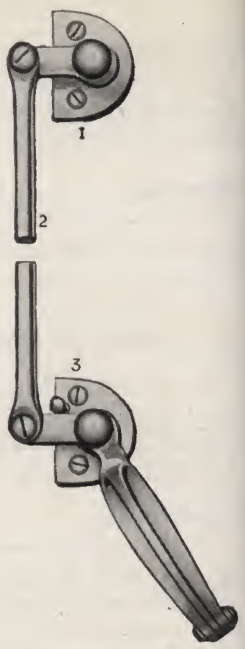
Alternate Cam Handle

No. 210 shown (opposite hand No. 211)

When used in the double or triple locking device hardware numbers are as follows:

Swing-out, No. 214, as shown (opposite hand No. 215)

Swing-in, No. 216, as shown (opposite hand No. 217)



Double Locking Device

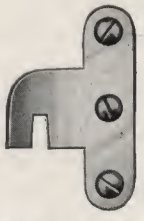
Used on side-hinged swing-out and vertically pivoted casements, over 4 ft. 0 in. and up to 8 ft. 0 in. high. Consists of the following:

1. **Auxiliary Latch No. 213**
2. **½ in. Steel Tube**
3. **Cam Handle No. 225 (shown)**
   (Opposite Hand No. 226)

Similar device for side-hinged swing-in casements consists of:

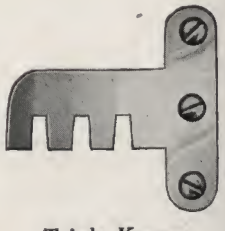
1. **Auxiliary Latch No. 212**
2. **½ in. Steel Tube**
3. **Cam Handle No. 227 (shown)**
   (Opposite Hand No. 228)

Triple Locking Device for use on casements over 8 ft. 0 in. high is similar, with an additional auxiliary latch



Single Keeper

No. 222 shown (opposite hand No. 233)
Used on swing-in casements



Triple Keeper

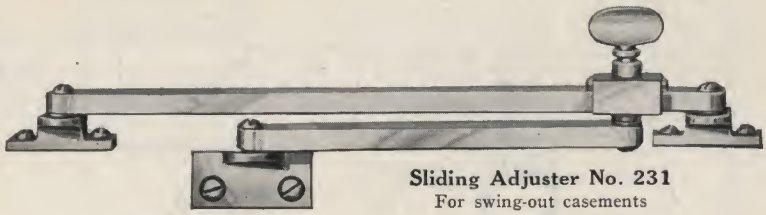
No. 223 shown (opposite hand No. 224)
Used on swing-in casements

Continued on next page

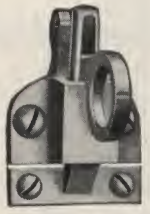
HARDWARE FOR LUPTON STEEL CASEMENTS—HEAVY TYPE

All hardware numbers are for solid bronze hardware highly polished, unless noted otherwise. Cam handles, latches and spring catches are mounted either on the ventilator section or on steel plates welded to the ventilator

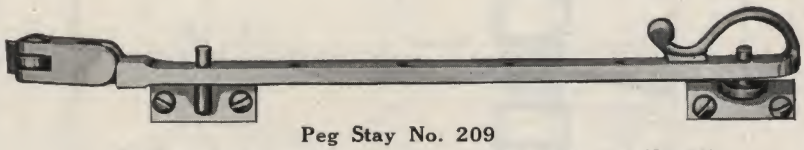
Pull Down Ring No. 251
Used at top of Projected-Out-at-Bottom ventilators



Sliding Adjuster No. 231
For swing-out casements

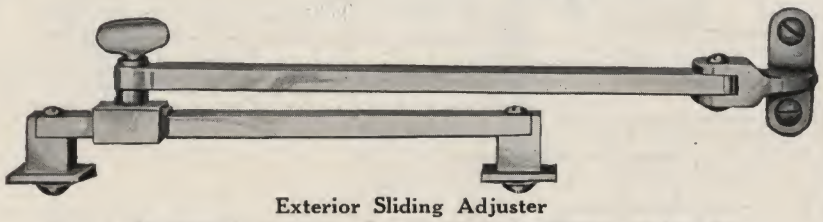


Spring Catch No. 243
Used at bottom of Projected-Out-at-Bottom ventilators beyond reach from floor



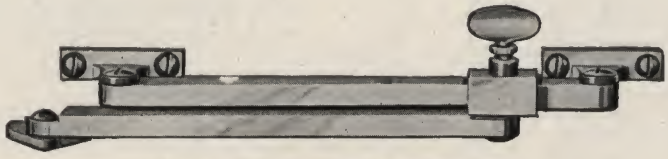
Peg Stay No. 209
For horizontally pivoted casements. A similar peg stay No. 249 or a peg stay terminating in a scroll (No. 250) is used on vertically pivoted casements

Cam Handle
No. 268 shown (opposite hand No. 269)
Used at bottom of Projected-Out-at-Bottom ventilators within reach from floor. One handle used for ventilators up to 3 ft. 6 in. wide. Two handles for wider ventilators



Exterior Sliding Adjuster
For swing-in casements. No. 230 for single casements up to 1 ft. 7 in. wide, or for double casements up to 3 ft. 0 in. wide. No. 229 for larger casements

Spring Catch No. 248
Used at top of Projected-In-at-Top ventilators beyond reach from floor



Interior Sliding Adjuster No. 236
For swing-in casements

Cam Handle
No. 266 shown (opposite hand No. 267)
Used at top of Projected-In-at-Top ventilators within reach from floor. One handle used for ventilators up to 3 ft. 6 in. wide. Two handles used for wider ventilators

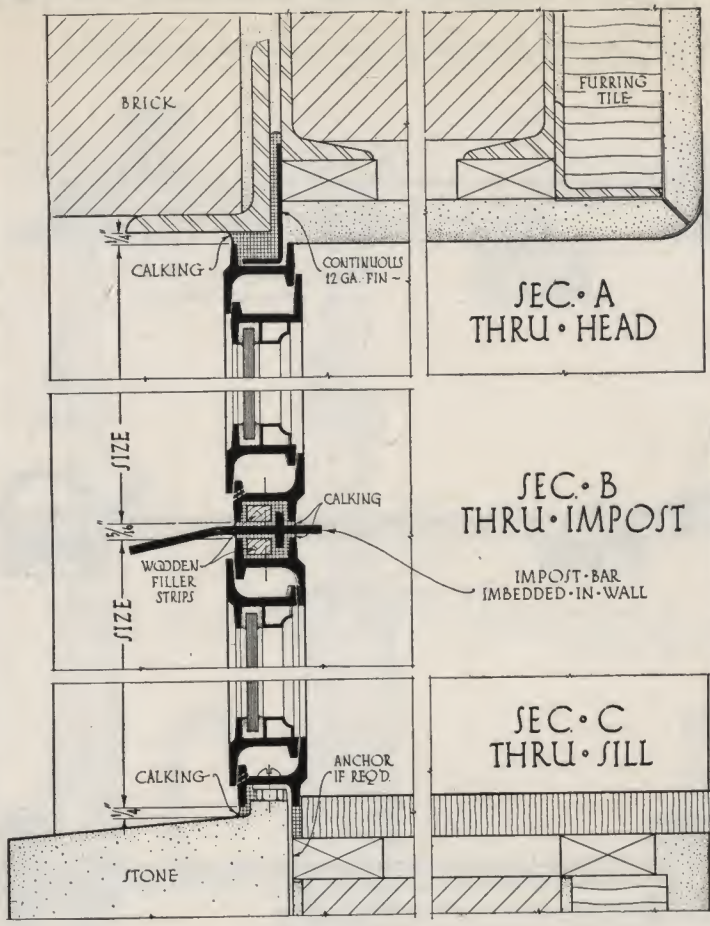
Friction Hinges
Solid bronze friction hinges eliminate sill adjusters and will be furnished on hinged casements, when specified, at added cost

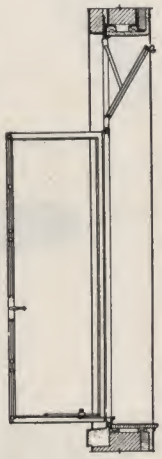
Bronze Butt No. 2200
With steel pin. Not polished. Used on hinged casements

Continued on next page

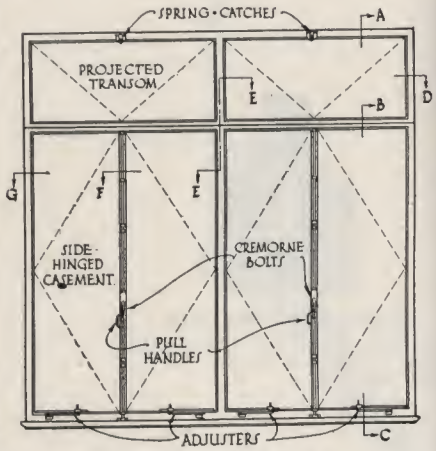
LUPTON SIDE-HINGED-CASEMENTS WITH-PROJECTED-TRANSOMS

SCALE-FOR-DETAILS-3"—1'-0"





SECTION VENTILATORS-OPEN



INSIDE-ELEVATION -VENTILATORS-CLOSED-

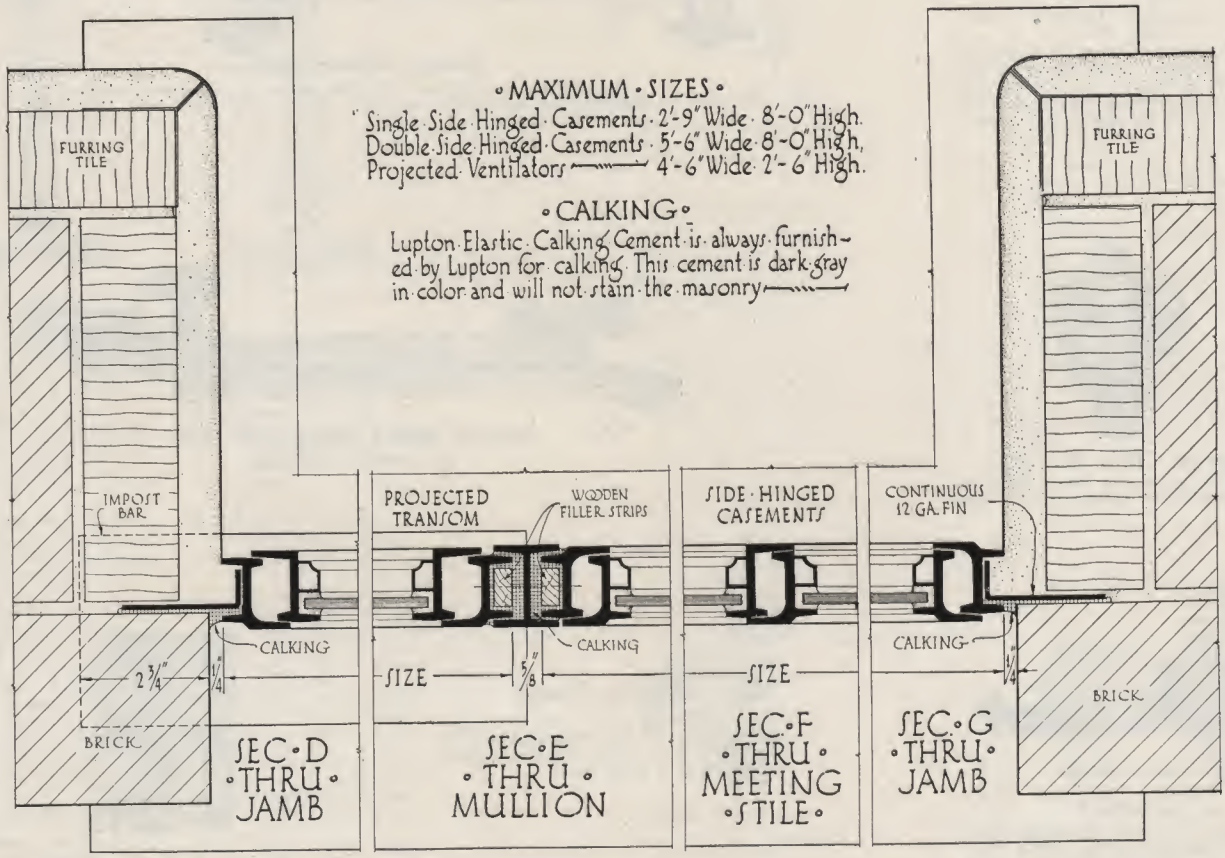
SCALE-1/4"—1'-0"

-MAXIMUM-SIZES-

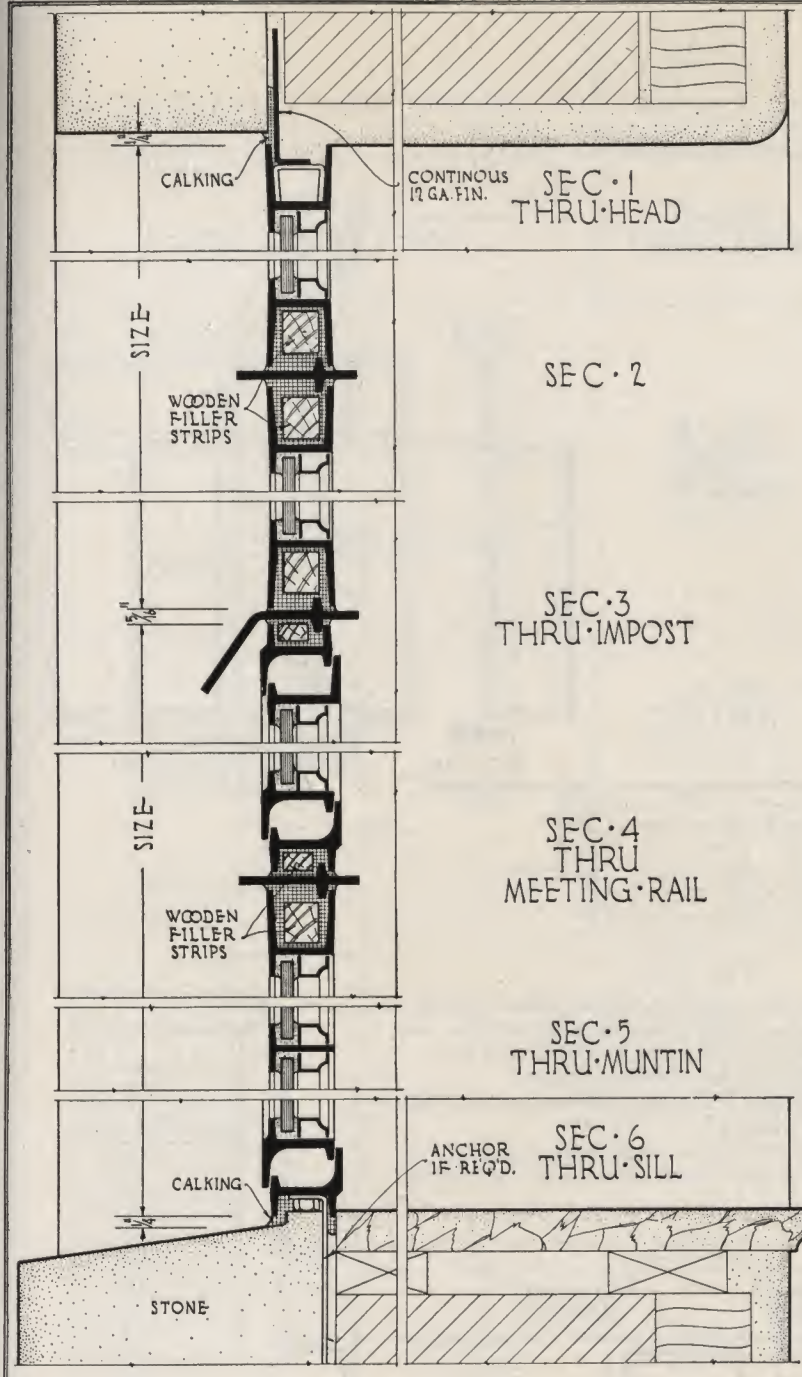
Single-Side-Hinged-Casements-2'-9" Wide-8'-0" High.
Double-Side-Hinged-Casements-5'-6" Wide-8'-0" High.
Projected-Ventilators——4'-6" Wide-2'-6" High.

-CALKING-

Lupton-Elastic-Calking-Cement-is-always-furnished-by-Lupton-for-calking. This-cement-is-dark-gray in-color-and-will-not-stain-the-masonry——

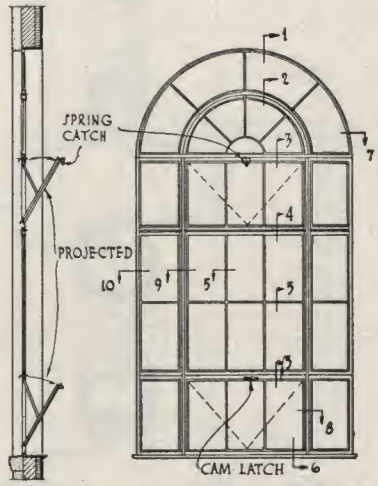


Continued on next page



LUPTON·CASEMENTS WITH·CIRCLE·HEADS

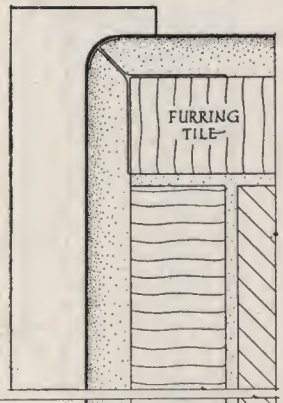
SCALE·FOR·DETAILS·3″=1′-0″

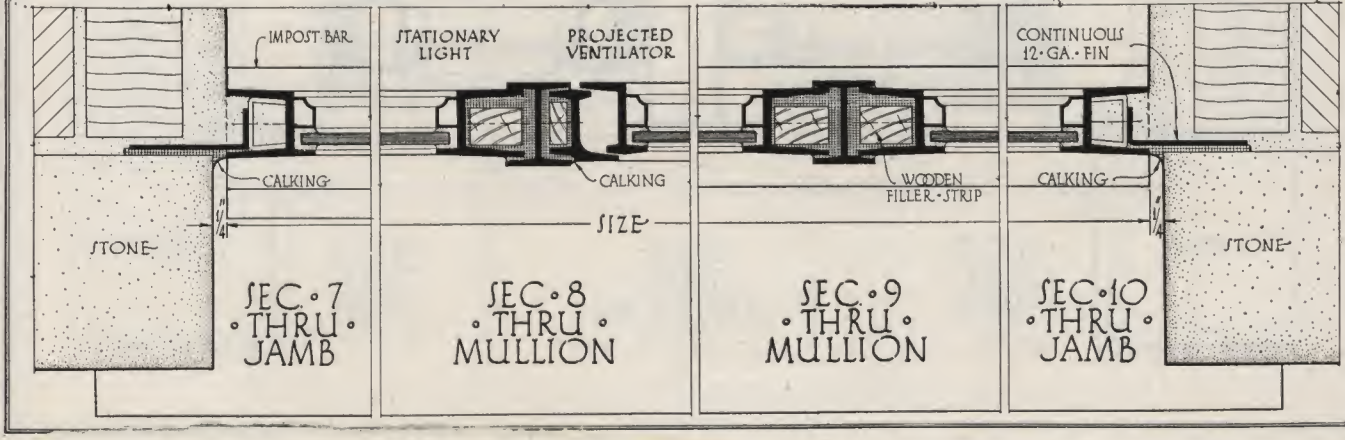


SCALE·⅛″—1′-0″

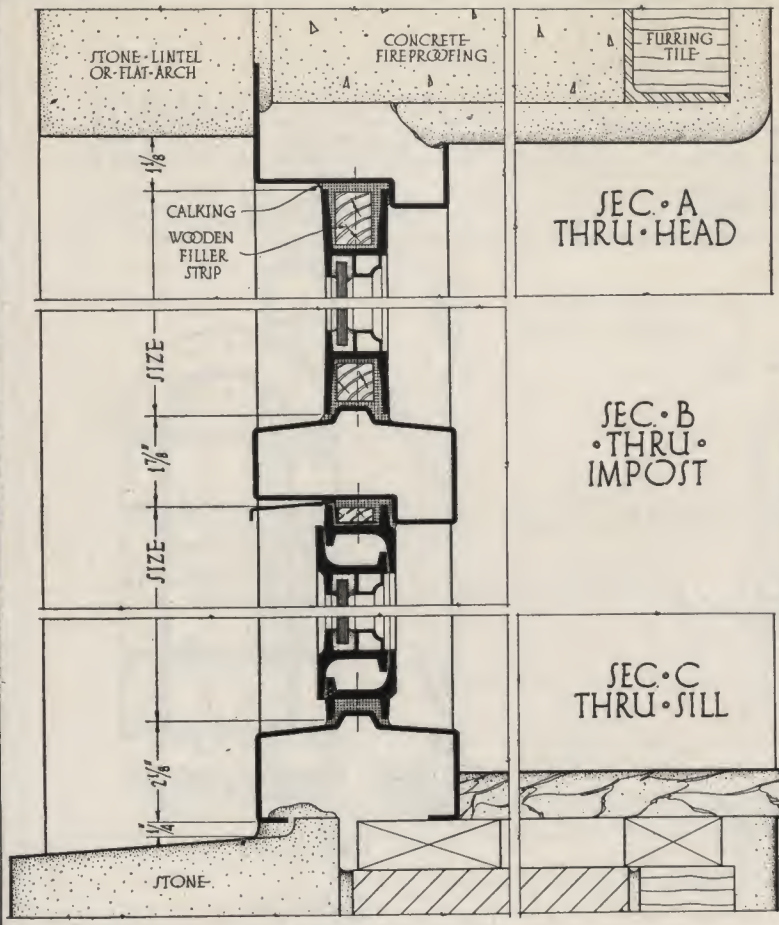
·CALKING·

Lupton·Elastic·Calking·Cement·is·always·furnished·by·Lupton·for·Calking~This·cement·is·dark~gray·in·color·&·will·not·stain·the·masonry.



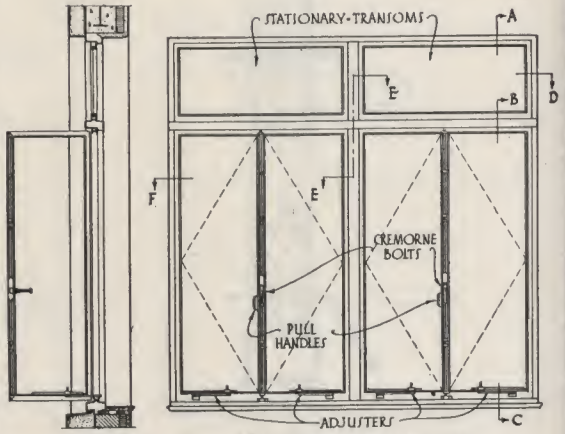


Continued on next page



LUPTON CASEMENTS WITH 4" PLATE FRAMES

SCALE FOR DETAILS 3"—1'-0"



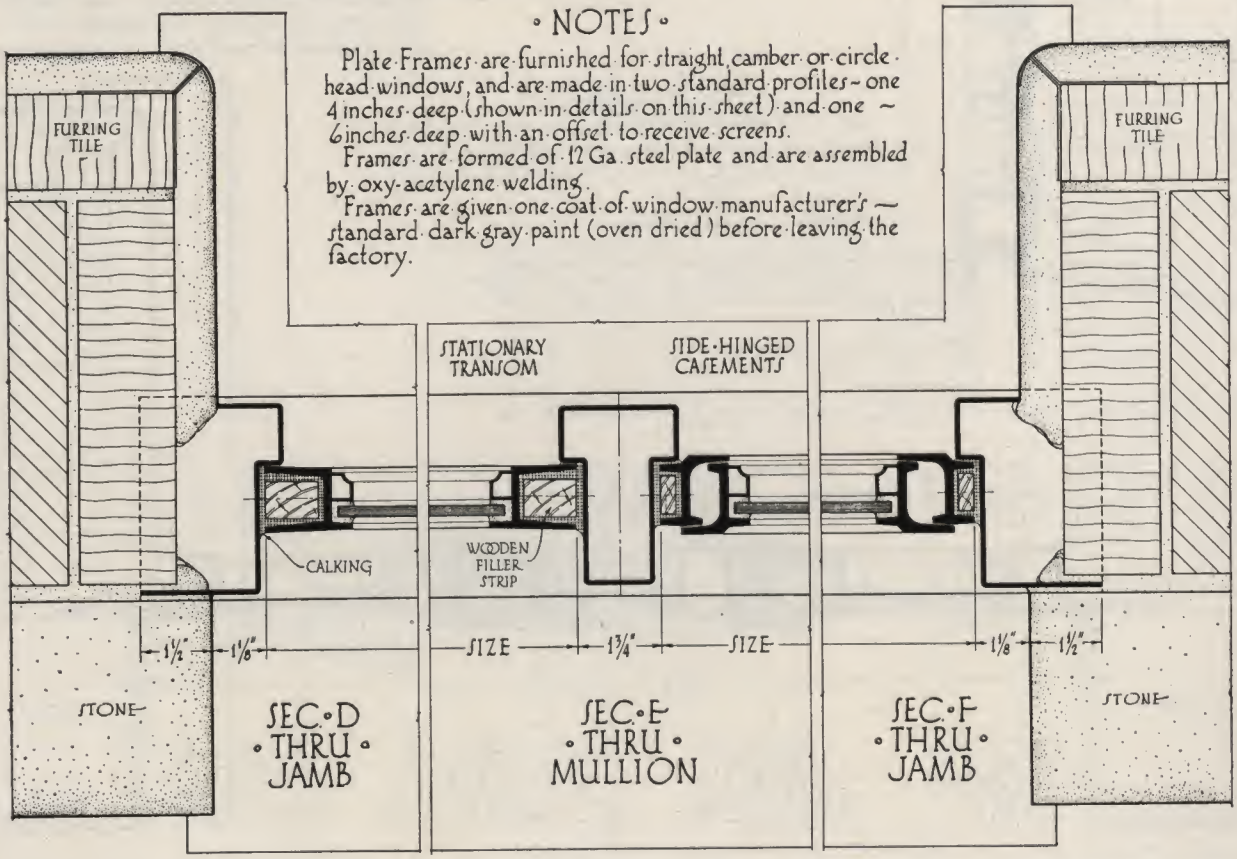
SCALE - ¼"—1'-0"

NOTES

Plate Frames are furnished for straight, camber or circle head windows, and are made in two standard profiles - one 4 inches deep (shown in details on this sheet) and one - 6 inches deep with an offset to receive screens.

Frames are formed of 12 Ga. steel plate and are assembled by oxy-acetylene welding.

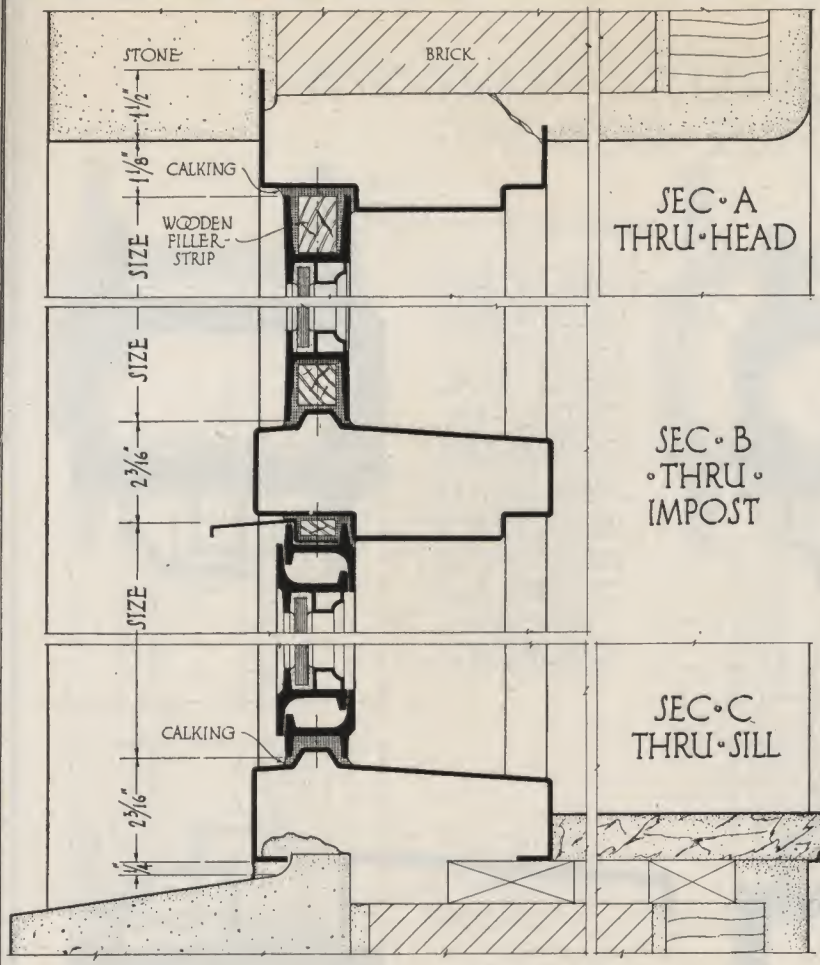
Frames are given one coat of window manufacturer's - standard dark gray paint (oven dried) before leaving the factory.



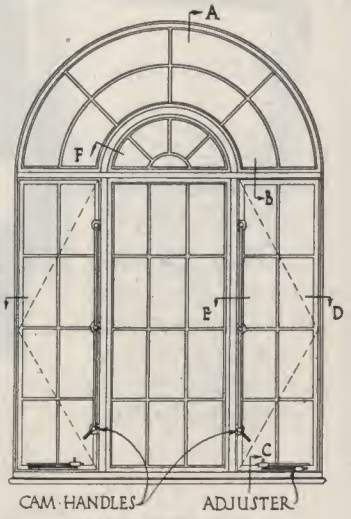
Continued on next page

LUPTON · CASEMENTS WITH · 6" · PLATE · FRAMES

SCALE · FOR · DETAILS ~ 3" = 1'-0"



SECTION VENTILATORS OPEN



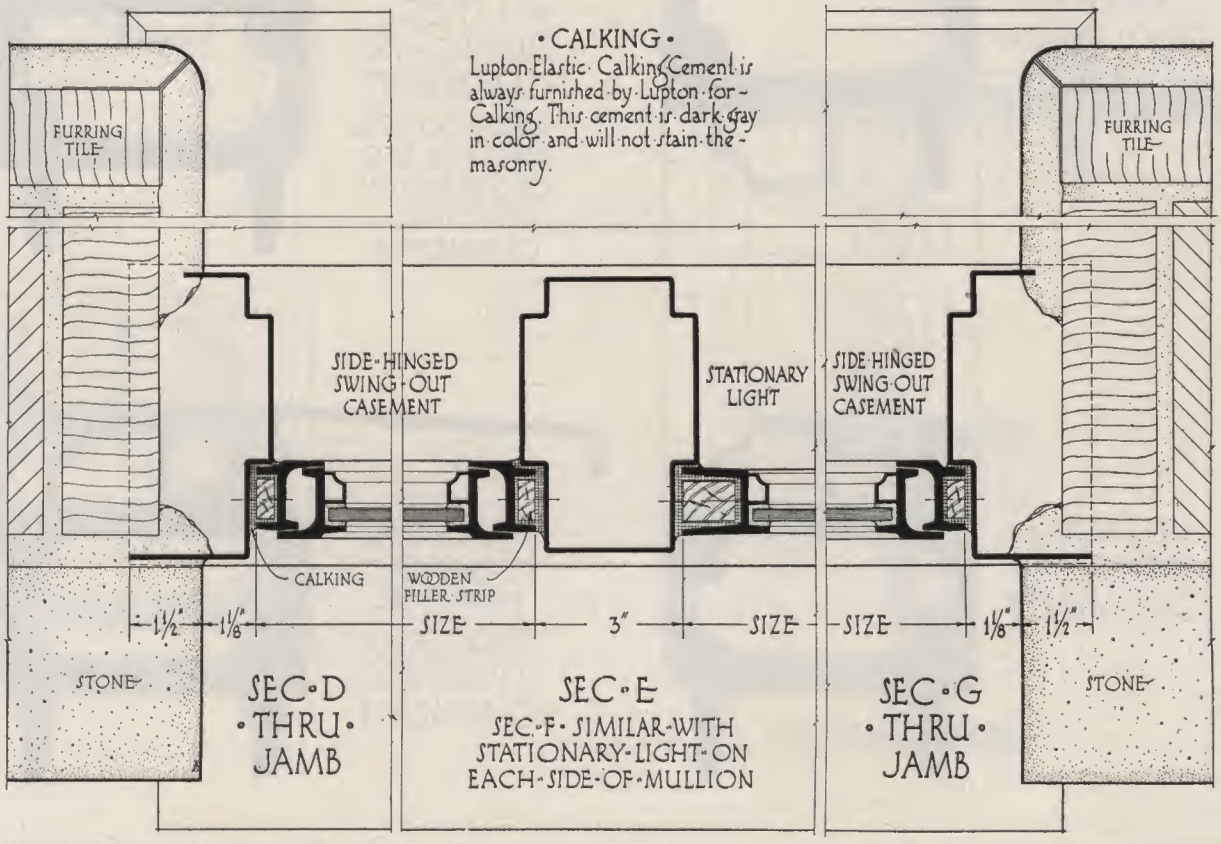
INSIDE · ELEVATION

SCALE 3/16" = 1'-0"

· PLAN · VENTILATORS · OPEN

· CALKING ·

Lupton Elastic Calking Cement is always furnished by Lupton for Calking. This cement is dark gray in color and will not stain the masonry.



Continued on next page

LUPTON CASEMENT OPERATOR—SCREW TYPE

In banks, libraries and other buildings where window openings are fitted with large multiple unit casements, it is necessary to provide a method of operating casement ventilators that are beyond reach from the floor.

For this purpose Lupton has developed the screw type Casement Operator in several forms, to suit the varying requirements.

Classified by method of operation, there are two types of operators—those operated by an endless cord and those operated by a crank and vertical shaft.

Cord Operation

This type of operator is applied to a single ventilator, usually a transom. For open in at top ventilators or open out at bottom ventilators, the segmental cord operator is used. The cord passes over a pulley that has a threaded core and is mounted on a threaded bronze rod, bent in an arc. As the pulley turns, it runs backward and forward on the rod, opening or closing the ventilator. For side hinged ventilators the pulley is rigidly attached to the center of a vertical shaft threaded at one end with a right hand thread and at the other with a left hand thread and mounted on the stationary frame of the casement. As the pulley revolves, two bronze nuts travel along the threaded portions of the rod, opening or closing the casement by means of vent arms similar to those shown on plate No. W-3, page 14.

Crank and Shaft Operation

This method is used where there are a number of ventilators to be operated simultaneously. Details of operation and application are shown on pages 14, 15 and 16.

With the horizontal screw type shaft shown on page 14 the degree of opening is limited by the width of the ventilator as illustrated in the sketch on Plate W-3. This has always to be remembered when designing.

The vertical screw shaft operator will operate a greater number of ventilators and a longer length of shaft than the horizontal type and the degree of opening is not limited by the width of the ventilator, but not more than two tiers of ventilators can be operated from one station.

SPECIFICATION FOR CASEMENT OPERATOR—SCREW TYPE

Work Included

1. Furnish and install where shown on drawings Lupton Casement Operator—Screw Type, manufactured by David Lupton's Sons Co., Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate for the architect's approval complete shop drawings. These shall show scaled details of construction, etc.

Material and Construction

Note: Operators are available in three types.
(a) Horizontal, vertical or curved screw shaft operated by cord and pulley.
(b) Horizontal screw shaft operated by vertical shaft, crank and miter gears.
(c) Vertical screw shaft, operated by crank and miter gears.

3. (a-1) Operator shall have a ⅜-in. diameter steel shaft threaded with right and left hand threads mounted on three malleable iron brackets attached to frame of casement. Each threaded portion of the shaft shall be equipped with an adjustable bronze traveling nut. Sash rods shall be of ⅞x¾-in. round edge high carbon steel connected to the traveling nut and to the window in a manner to prevent chattering or vibration. Shaft shall be operated by a grooved bronze sheave wheel fastened by set screws to the horizontal screw shaft and rotated by means of a ⅛-in. diameter endless cord.

3. (a-2) (For in-at-top or out-at-bottom vents.)

Operator shall be a ⅜-in. diameter threaded bronze shaft curved to the required radius. Shaft shall be attached to the top rail or the window frame member and the top rail of vent member shall be notched to permit clearance of the shaft on the inward opening vent.

Ventilator is to be operated by a grooved pulley which is fastened to the ventilator and which travels along the curved screw shaft and is operated by a ⅛-in. diameter endless cord.

3. (b) Operator shall have a ½-in. diameter horizontal steel shaft cut with a 60° three per inch double thread. Shaft shall be threaded at one end with a left hand thread and at the other with a right hand thread.

Two bronze traveling nuts shall be furnished for each vent, one at each end of the threaded shaft. Traveling nut shall have an adjustable feature for close fitting of the sash rod, one end of which shall be attached to the traveling nut and the other to the sash. Sash rod shall be made of ⅞x¾-in. round edge high carbon steel. Shaft shall be supported by malleable iron brackets rigidly attached to the window frame or building structure and spaced so that shaft will be properly supported without excessive deflection.

Power shall be applied through a miter gear box, the gears being turned by a detachable handle 5 in. long. Power boxes and handle shall be of bronze. Each horizontal screw shaft to be operated from a miter gear box rigidly attached to mullion or jamb.

3. (c) Operator shall have a vertical ¾-in. diameter cold rolled steel shaft coupled to a threaded steel shaft 1 ft. 6 in. long and engaging with an internal thread on miter gear in bronze power box.

Power box shall be rigidly attached to window mullion or building structure and be equipped with a bronze handle 5 in. long that may be detachable.

The screw shaft shall move up and down in a vertical plane and turn a ¾-in. diameter horizontal steel shaft by means of a lever arm and connecting link.

Malleable iron arms shall be fastened by set screws to this horizontal shaft and shall be connected to the ventilator by means of flat sash rods.

Two arms and sash rods shall be furnished for each vent. Horizontal shaft shall be supported by malleable iron brackets attached to window or building structure and spaced so that shaft will have a minimum amount of deflection.

Erection

4. Operating devices shall be erected and adjusted to proper working order by the window contractor.

Painting

5. All malleable iron or steel parts shall be given one coat of operators manufacturer's standard dark gray paint, oven dried, before shipment.

Parts Available in Iron or Bronze

Power Box Handle Miter Box

Note: Power box may be concealed in wall, in which case a handle extension can be furnished.

Continued on next page

-LIMITS-

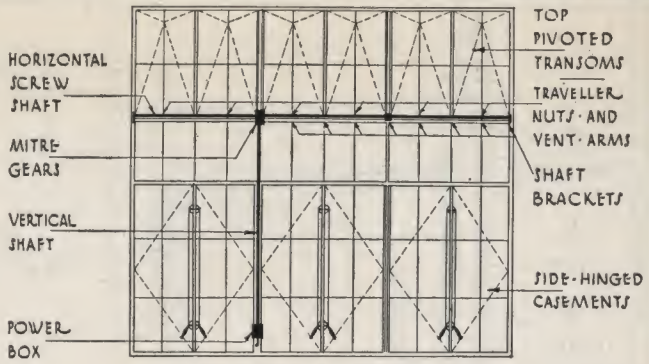
TOP-HUNG-(PIVOTED-4-IN.-FROM-TOP-OR-TOP-HINGED)
NOT-MORE-THAN-90-SQ.-FT.-OR-9-VENTS • SHAFT-NOT-MORE-THAN 10-FT.-EITHER-SIDE-OF-MITER-GEAR-BOX

PIVOTED-(PIVOTED-2-IN.-ABOVE-CENTER)
NOT-MORE-THAN-120-SQ.-FT.-OR-12-VENTS • SHAFT-NOT-MORE-THAN 15-FT.-EITHER-SIDE-OF-MITER-GEAR-BOX.

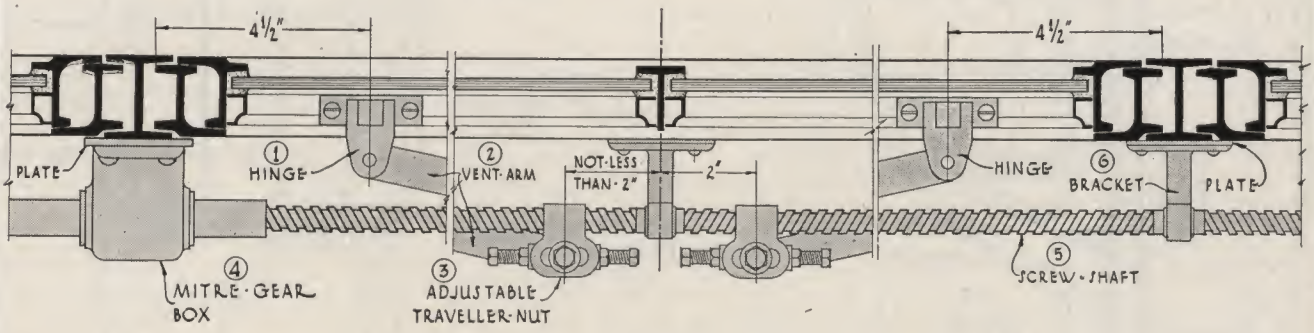
-MATERIAL-

OPERATORS-ARE-FURNISHED-WITH-STEEL-SHAFTS-AND-SOLID-BRONZE OR-MALLEABLE-IRON-FITTINGS • FINISH-IS-BRONZE-POLISHED-OR-MALLEABLE-IRON-PAINTED

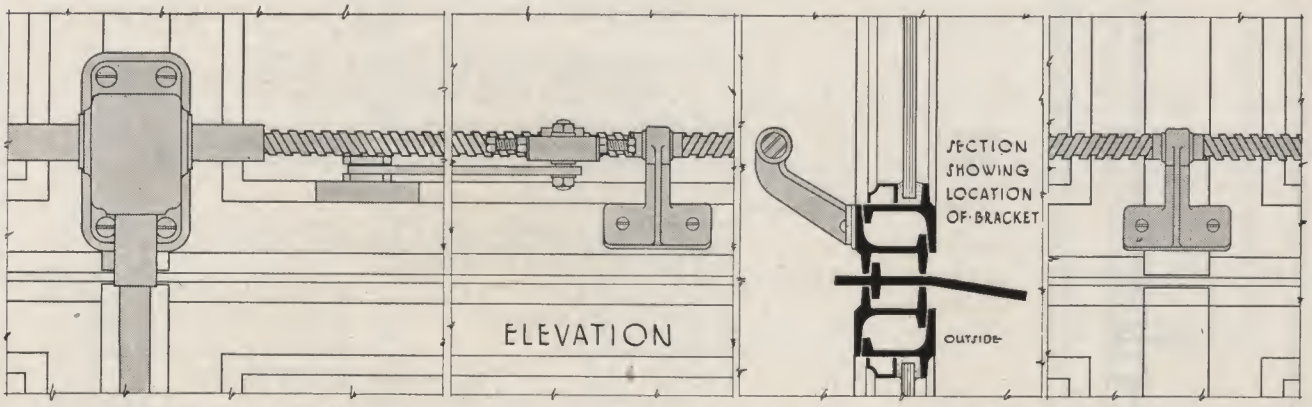
① HINGE-&-BRACKET
② VENT-ARM
③ TRAVELLER-NUT
} 2-PER VENT
④ MITER-GEAR-BOX (2,3-OR-4 WAY)
⑤ SCREW-SHAFT
⑥ SHAFT-&-BRACKET
⑦ VERTICAL-SHAFT
⑧ POWER-BOX

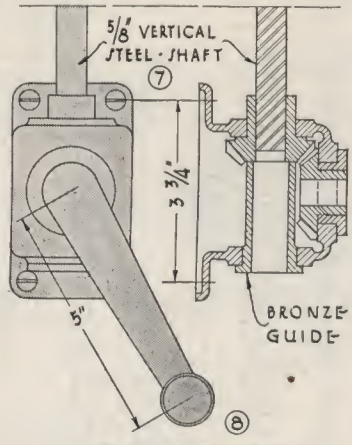


-INSIDE-ELEVATION-



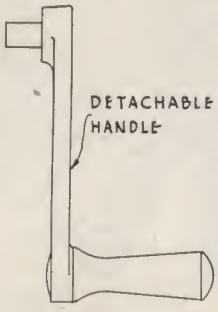
PLAN

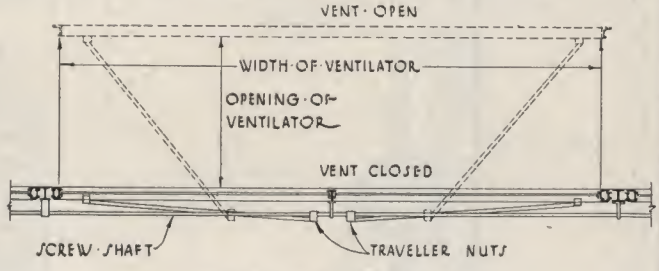




POWER-BOX

NOTE
Gears are always Bronze • Case may be Malleable Iron or Bronze



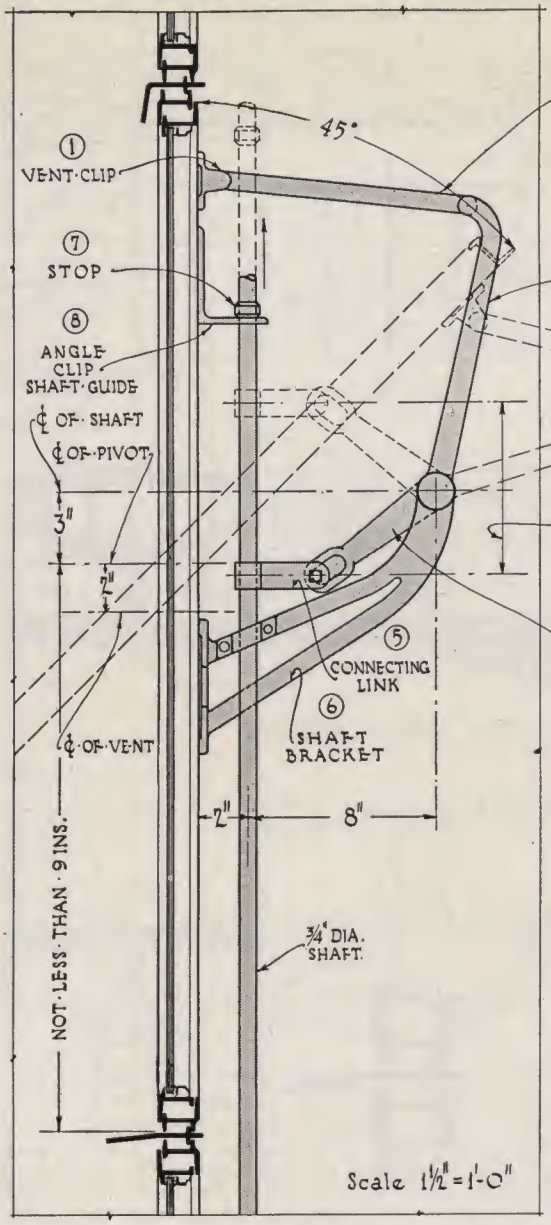


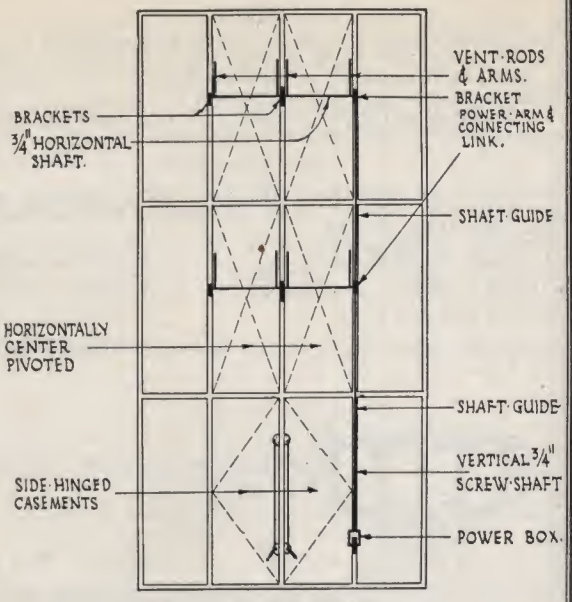
PLAN-DIAGRAM
NOT-TO-SCALE

OPENING OF VENTILATOR VARIES WITH WIDTH OF VENTILATOR AND IS EQUAL TO APPROXIMATELY 6-INS LESS THAN ONE HALF THE WIDTH OF THE VENTILATOR

SCALE FOR-DETAILS HALF-SIZE	OPERATOR-WITH-HORIZONTAL-SCREW-SHAFT APPLIED-TO-TOP-PIVOTED-TRANSOMS LUPTON-CASEMENT-OPERATOR — SCREW-TYPE	PLATE-NO W-3 AUGUST • 1929

Continued on next page





·INSIDE·ELEVATION·

·LIMITS·

NOT·MORE·THAN·2 TIERS·OF·VENTS·TO BE OPERATED·FROM ONE·POWER

CENTER·PIVOTED·(PIVOTED·2 IN. ABOVE CENTER)
NOT·MORE THAN·140 SQ.FT. NOR 14 VENTS~HORIZONTAL SHAFT·NOT MORE·THAN·21 FT. LONG·ON·ONE·RUN.

TOP·HUNG (PIVOTED·4 IN·FROM·TOP·OR·TOP·HINGED)
NOT·MORE THAN·100 SQ.FT. NOR 10 VENTS~HORIZONTAL SHAFT·NOT·MORE·THAN·15 FT. LONG·ON·ONE·RUN.

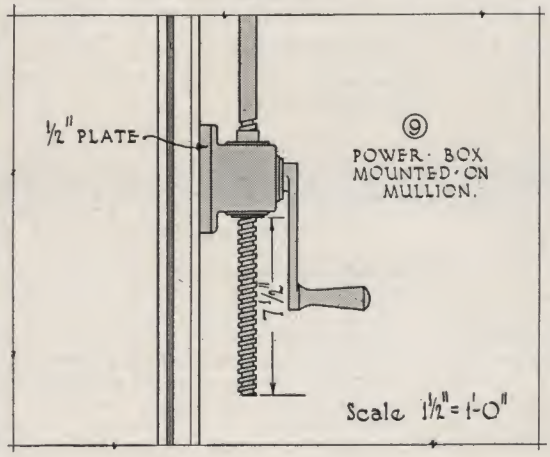
·MATERIALS·

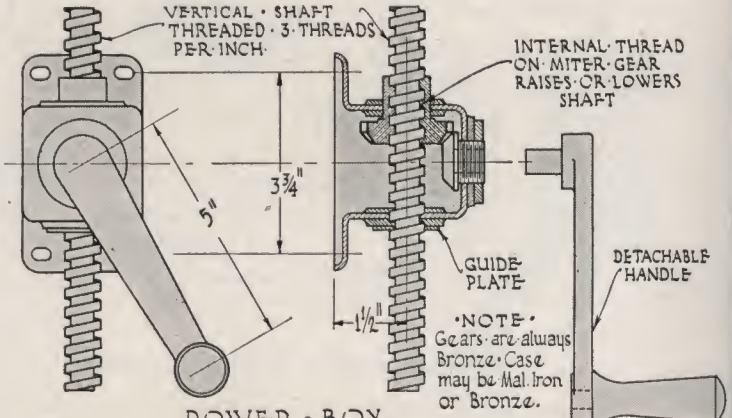
OPERATORS·ARE·FURNISHED·WITH·STEEL·SHAFTS·AND·SOLID·BRONZE·OR MALLEABLE·IRON·FITTINGS·MITRE·GEARS·ARE·ALWAYS·BRONZE~ GEAR·BOX·MAY·BE·IRON·OR·BRONZE·

①VENT·CLIP
②VENT·ROD
③VENT·ARM
} 2·PER·VENT

④POWER·ARM
⑤CONNECTING·LINK
} ONE·PER·HORIZONTAL·SHAFT.

⑥SHAFT·BRACKET {AT·ENDS·OF·SHAFT AND·AT·MULLIONS
⑦STOP {2·PER·VERTICAL·SHAFT
⑧ANGLE·CLIP·SHAFT·GUIDE {NOT·OVER 6 FT. APART
⑨POWER·BOX.

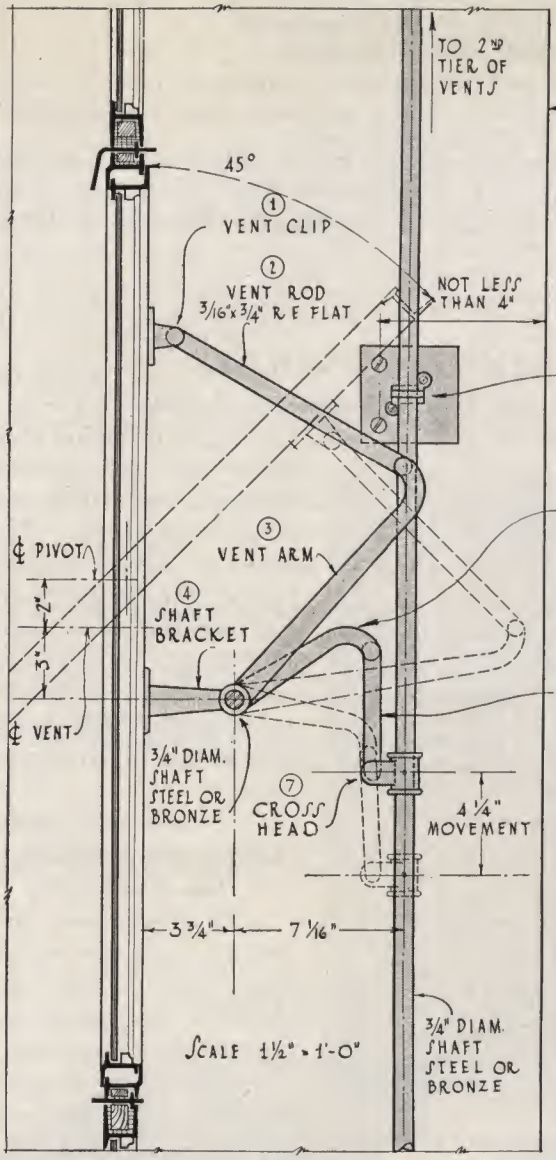


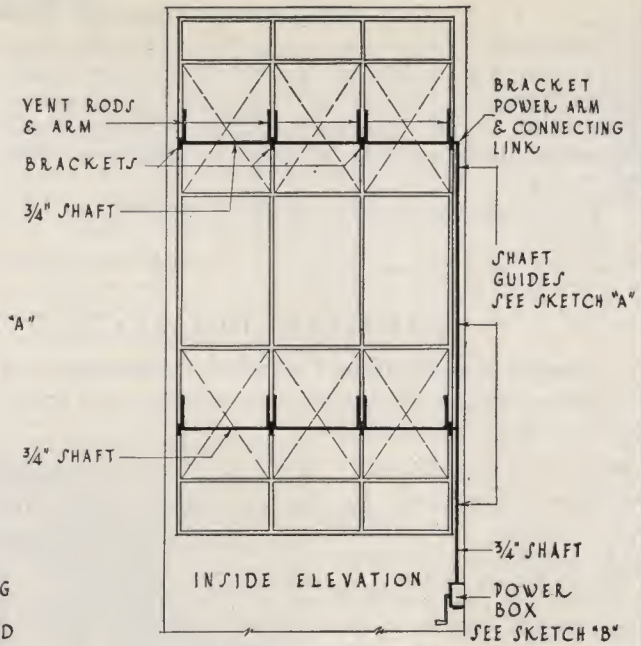


POWER·BOX
SCALE·3"=1'-0"

SCALE·AS SHOWN	OPERATOR·WITH·VERTICAL·SCREW·SHAFT APPLIED·TO·CENTER·PIVOTED·CASEMENTS LUPTON·CASEMENT·OPERATORS ~ SCREW·TYPE·	PLATE·NO W~1 AUGUST·1929

Continued on next page





LIMITS

NOT MORE THAN 2 TIERS OF VENTS TO BE OPERATED FROM ONE POWER.

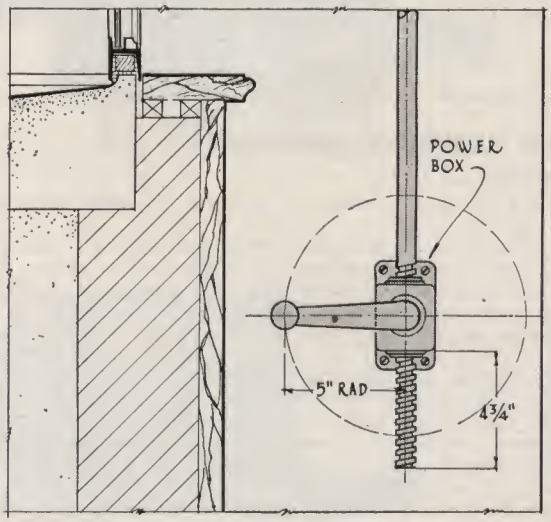
CENTER PIVOTED (PIVOTED 2 IN. ABOVE CENTER)
NOT MORE THAN 140 SQ. FT. NOR MORE THAN 14 VENTS.
HORIZONTAL SHAFT NOT MORE THAN 21 FT LONG ON ONE RUN

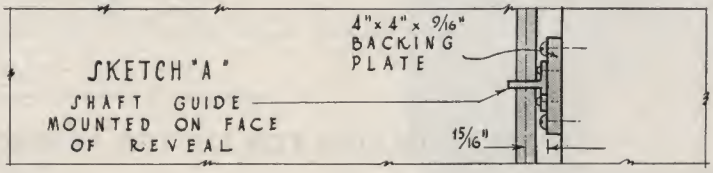
TOP HUNG (PIVOTED 4 IN. FROM TOP~OR TOP HINGED)
NOT MORE THAN 100 SQ.FT. NOR MORE THAN 10 VENTS.
HORIZONTAL SHAFT NOT MORE THAN 15 FT. LONG ON ONE RUN.

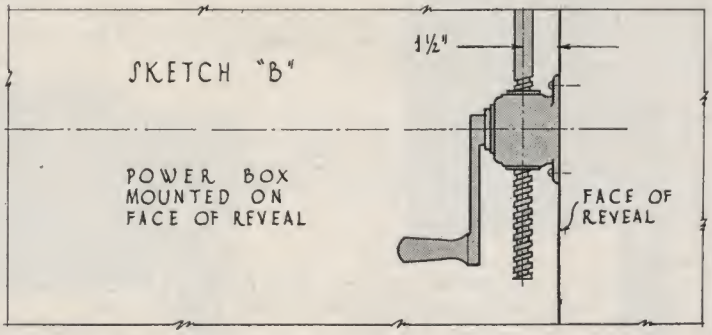
MATERIAL

OPERATORS ARE FURNISHED WITH STEEL SHAFTS AND SOLID BRONZE OR MALLEABLE IRON FITTINGS. MITRE GEARS ARE ALWAYS BRONZE. GEAR BOX MAY BE IRON OR BRONZE

① VENT CLIP, ② VENT ROD, ③ VENT ARM — 2 PER VENT
④ SHAFT BRACKET — AT ENDS OF SHAFT AND AT MULLIONS
⑤ POWER ARM, ⑥ CONNECTING LINK, ⑦ CROSS HEAD — ONE PER HORIZONTAL SHAFT
⑧ SHAFT GUIDE — NOT MORE THAN 6 FT. APART.







SCALE FOR DETAILS 1½"=1'-0"	•OPERATOR•WITH•VERTICAL•SCREW•SHAFT• •APPLIED•TO CENTER•PIVOTED•CASEMENTS• •LUPTON•CASEMENT•OPERATOR~SCREW•TYPE•	PLATE NO. W~2 AUGUST 1929

Continued on next page

LUPTON STEEL WINDOWS FOR STANDARD SIZE OPENINGS

Combination Projected Casements—Projected-In-at-Top Casements
Architectural Projected Windows—Double Hung Windows

Applying advanced principles of standardization, approved by the Division of Simplified Practice of the United States Department of Commerce, we have designed four types of standardized Lupton Steel Windows interchangeable through a range of fifty sizes.

These windows permit unlimited architectural expression and are available at moderate cost for use in office buildings, hotels, apartment houses, hospitals and similar high-grade structures.

All projected types have a friction shoe controlling the movement of ventilators, which holds them at any reasonable degree of opening, and eliminates the use of sill hardware.

LUPTON PROJECTED CASEMENT WINDOWS

Lupton Combination Projected Casements

These windows, by their unique design, bring a new high standard of natural ventilation to multiple-story buildings. They are the only windows that afford such positive air control. A horizontal inward-opening ventilator located at the bottom of the window admits fresh air without draft.

Above, forming the upper portion of the window, are two side-projected ventilators. By closing one of these and slightly opening the other against the breeze, an air movement is induced which siphons used air out of the window.

Thus, Lupton Combination Casements provide easily controlled, balanced ventilation through every window opening.

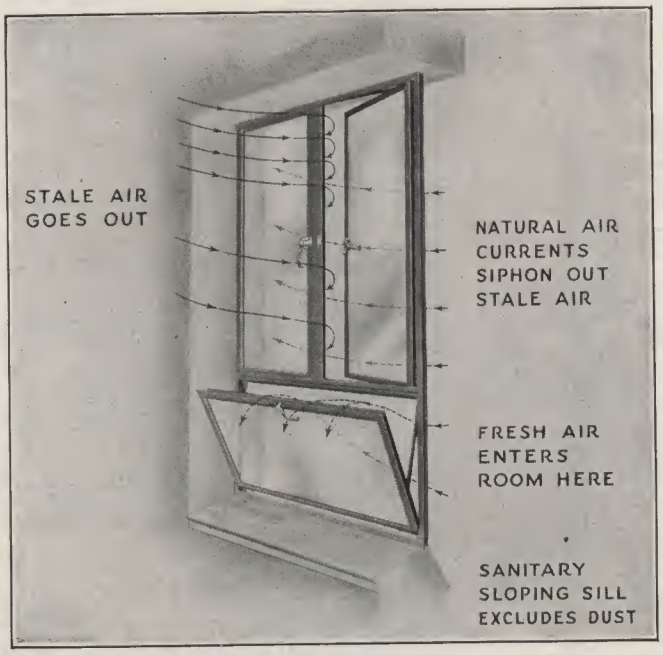


Diagram Showing How Lupton Combination Casements Assure Balanced Ventilation

Dotted arrows show natural fresh-air currents. Solid arrows show stale air moving outward by means of siphon action fully described in text

Lupton Single Casements—Details of these windows are the same as in the Lupton Combination Casements and have the same structural and 100% ventilation advantages. They offer an almost limitless number of arrangements and opening sizes when used in any of the many combinations of which they are capable, both in the horizontal and vertical positions.

Lupton Projected-In-at-Top Casements

Maintenance of strict privacy, adequate ventilation without draft and abundant lighting are features of these windows.

They are particularly desirable for medical institutions, art museums, hospitals, solariums and similar buildings.

SPECIFICATION FOR LUPTON PROJECTED CASEMENT WINDOWS

Work Included

1. Furnish and install where shown on drawings, Lupton Steel Projected Casement Windows, manufactured by David Lupton's Sons Co., Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate, for the architect's approval, complete shop and installation drawings. These shall show scaled sections of window and frame members, details of construction, hardware, anchoring, etc.

Materials

3. Ventilator and frame members shall be made of copper-bearing, rust-resisting steel, specially rolled in solid, one-piece sections.

4. Vertical Mullions shall be of 12 gauge plate, formed.

5. Imposts shall be of ⅜ in. thick, steel plate, with a 14 gauge galvanized weathering member.

6. Glazing Clips shall be $\frac{5}{16}$ in. by ½ in. rolled steel angles, 2 in. long.

Note: See List of Extras at end of specification.

Construction

7. All Projected Casements shall be designed for outside glazing.

8. All Projected Casement Windows shall be straight and true, members in alignment and surfaces in a plane. All joints shall be welded rigid and tight and so fabricated at the junctures or intersections as to prevent loss of strength.

9. Three sides of the ventilator shall be made of bars weighing not less than 1.7 lbs. per ft. and the remaining side of a bar weighing not less than 1.82 lbs. per ft. Frames shall be made of bars weighing not less than 2.14 lbs. per ft.

10. At the corners and joints of the frames and ventilators the members shall be mitered or notched, framed together and heavily welded so as to make a rigid, tight connection.

Exposed, welded surfaces shall be ground flush with members. The frame and ventilator shall form a two-point, flat, continuous, weathering contact.

11. Mullions and bolts for attachment shall be provided where two or more windows are placed side by side.

12. Imposts and bolts for attachment shall be provided where two or more windows are placed one above the other.

13. At the head of all Projected-Out-at-Side Ventilators a 16 gauge formed steel, hot galvanized, weather bar shall be used.

Continued on next page

14. Fins of 12 gauge steel for Head and Jambs shall be furnished, shipped unattached and applied in the field.

Note: See List of Extras at end of specification.

15. Anchor Clips of 14 gauge steel for Head, Jambs and Sill shall be furnished and applied in field.

16. Glazing Clips shall be held in place by steel machine screws.

Note: See List of Extras at end of specification.

17. Ventilators shall be accurately pivoted on two ventilator arms of solid steel. The two ventilator arms shall be attached to the ventilator and frame members by malleable iron arm blocks with brass pivot pins and washers. Ventilators shall be equipped with two bronze friction shoes, sliding in the outside frame member so as to guide the ventilator and prevent rattling. The friction shoes shall be equipped with a rustproof steel spring and adjusting screw, so designed to insure constant friction and hold the ventilator in an open position without the use of fasteners or adjusters.

Hardware

18. All Handles, Latches and Pull Down Rings shall be solid bronze with natural bronze finish. All hardware (listed below) shall be fitted in the shop and shipped unattached, carefully packed to prevent damage until applied for use.

Note: The following hardware is standard:

For Projected-Out-at-Side Ventilators

Bronze Cam Handle—for ventilators in windows less than 4 ft. 6 in. in height.

Double Locking Device—for ventilators in windows 4 ft. 6 in. or more in height.

For Projected-In-at-Top Ventilators

Bronze Cam Handle—for ventilators within reach from floor, one handle on windows up to 3 ft. 6 in. wide; two handles on windows over 3 ft. 6 in. wide.

Bronze Ring Type Cam Handle—for ventilators beyond reach from floor.

For Projected-Out-at-Bottom Ventilators

Pull Down Ring and Ring Type Cam Handle for pole operation.

Calking Cement

19. The window manufacturer shall furnish non-staining elastic calking cement and wooden filler-strips for mullions and imposts as shown in window manufacturer's standard details.

Note: See List of Extras at end of specification.

Erection

20. All Projected Casement Windows shall be erected in prepared openings by the window contractor (unless otherwise specified).

21. All Projected Casement Windows shall be set plumb and true, properly aligned and securely anchored before glazing. Mullions and Imposts (and continuous fins if specified) shall be bolted securely to windows. Calking cement and wooden filler-strips shall be neatly applied at mullions and imposts as shown on window manufacturer's standard details.

Note: See List of Extras at end of specification.

Note: Include in the masonry specifications that all masonry openings shall be accurately constructed in accordance with the installation details for Projected Casement Windows. Note that when the continuous fins are built in the masonry, the placing of the furring tile at the Jambs must be delayed until after the windows are set. All grouting, pointing, etc., should be done by the mason contractor after the windows are set.

Painting

22. All Projected Casement Windows shall receive one coat of manufacturers' standard dark gray paint, oven-dried.

Note: See page 1.

Glass and Glazing

Note: (See also page 1). Specify glass and glazing under proper heading elsewhere in specifications.

(a) Do not specify single thickness glass.

(b) Specify high-grade steel casement putty (ordinary wood sash putty must not be used).

(c) Specify that all Steel Projected Casements shall be glazed from the outside, the glass set in a bed of putty and held by angle glazing clips.

See List of Extras below.

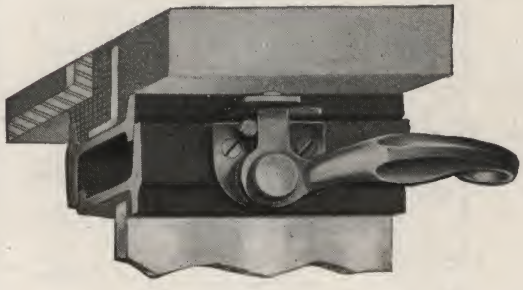
LIST OF EXTRAS

The following are furnished when specified at an added cost.

1. Continuous 12 gauge steel fins for head and jambs.
2. Non-staining elastic calking cement.
3. Application of calking cement at time of erection as shown on our standard details.
4. Continuous Glazing Angles to be substituted for Glazing clips. These glazing angles are made of hot rolled steel angle section $\frac{7}{16} \times \frac{23}{32} \times \frac{3}{32}$ in. They are cut in standard lengths with mitered ends, shipped loose and attached by the glazing contractor with the round head, udylited, steel machine screws supplied for the purpose.

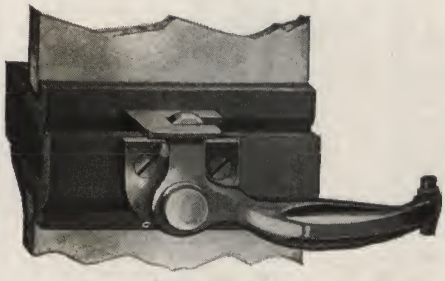
HARDWARE FOR LUPTON PROJECTED CASEMENT WINDOWS

All Handles and Latches Are Solid Bronze with Natural Bronze Finish



Ring Type Cam Handle No. 330

Used at center of Projected-In-at-Top Ventilators beyond reach from floor. For pole operation. Steel Keeper No. 2580 is welded to the frame



Cam Handle

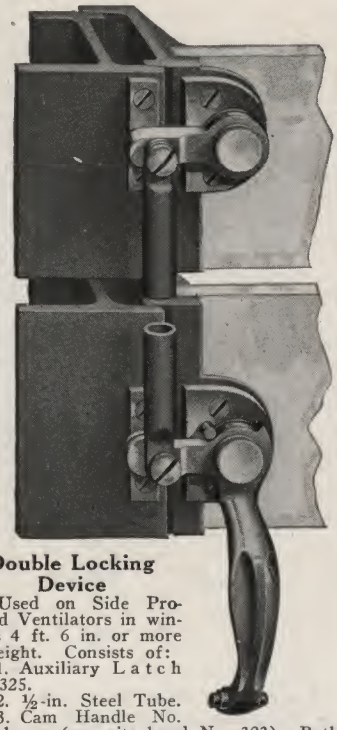
No. 311 shown (opposite hand No. 312)

Used on Projected-In-at-Top Ventilators within reach from floor. One handle for windows up to 3 ft. 6 in. wide. Two handles for windows over 3 ft. 6 in. wide. Steel keeper No. 2580 is welded to the frame

Cam Handle

No. 315 shown (opposite hand No. 316)

Used on Side Projected Ventilators in windows less than 4 ft. 6 in. in height. Mounted on Steel Backing Plate No. 2238 welded to frame of ventilator



Double Locking Device

Used on Side Projected Ventilators in windows 4 ft. 6 in. or more in height. Consists of:

1. Auxiliary Latch No. 325.
2. ½-in. Steel Tube.
3. Cam Handle No. 322 shown (opposite hand No. 323). Both Auxiliary Latch and Cam Handle are mounted on Steel Backing Plates No. 2238 welded to frame of ventilator

Continued on next page

COMBINATION · PROJECTED · CASEMENTS
100 PER · CENT · VENTILATED
· STANDARD · TYPES · AND · SIZES ·

NOMINAL · SIZE *	GLASS · SIZE	3'-0" (15" / 33¼")	3'-6" (18" / 39¼")	4'-0" (21" / 45¼")	4'-6" (24" / 51¼")	5'-0" (27" / 57¼")	V.D. DIMEN. SEE DETAILS FOR MEASURE POINTS
4' – 6"	50"	PS 3654	PS 4254	PS 4854	PS 5454	PS 6054	4' – 1⅜"
5' – 0"	56"	PS 3660	PS 4260	PS 4860	PS 5460	PS 6060	4' – 7⅜"
5' – 6"	41¾" / 17¾"	PST 3666	PST 4266	PST 4866	PST 5466	PST 6066	3' – 5 5/32" / 1' – 5 5/32"
6' – 0"	47¾" / 17¾"	PST 3672	PST 4272	PST 4872	PST 5472	PST 6072	3' – 11 5/32" / 1' – 5 5/32"
6' – 6"	53¾" / 17¾"	PST 3678	PST 4278	PST 4878	PST 5478	PST 6078	4' – 5 5/32" / 1' – 5 5/32"
7' – 0"	53¾" / 23¾"	PST 3684	PST 4284	PST 4884	PST 5484	PST 6084	4' – 5 5/32" / 1' – 11 5/32"
7' – 6"	19" / 41¾" / 19⅝"	PST 3690	PST 4290	PST 4890	PST 5490	PST 6090	1' – 6 23/64" / 3' – 5 5/32" / 1' – 7 3/64"
8' – 0"	19" / 47¾" / 19⅝"	PST 3696	PST 4296	PST 4896	PST 5496	PST 6096	1' – 6 23/64" / 3' – 11 5/32" / 1' – 7 3/64"
8' – 6"	19" / 53¾" / 19⅝"	PST 36102	PST 42102	PST 48102	PST 54102	PST 60102	1' – 6 23/64" / 4' – 5 5/32" / 1' – 7 3/64"
9' – 0"	25" / 53¾" / 19⅝"	PST 36108	PST 42108	PST 48108	PST 54108	PST 60108	2' – 0 23/64" / 4' – 5 5/32" / 1' – 7 3/64"

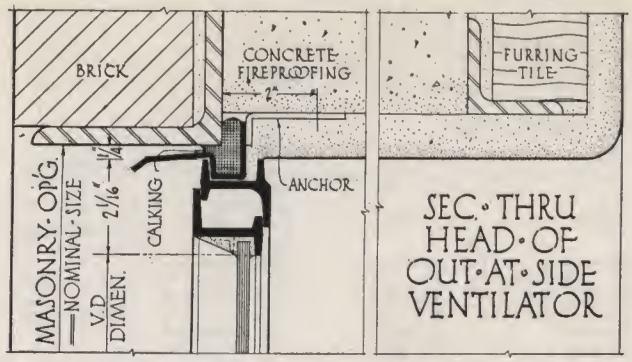
*Nominal Size equals the Masonry Opening required for one unit.

A special is an odd size between two less expensive standards

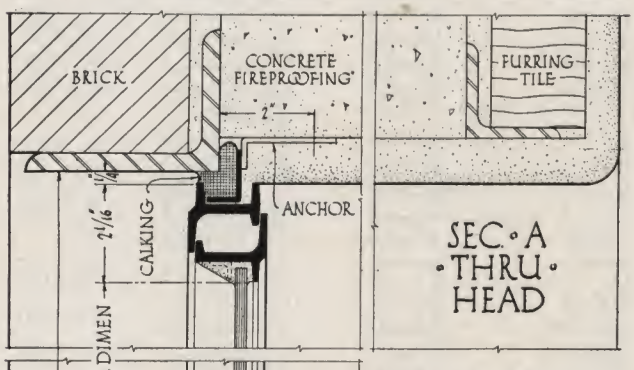
Continued on next page

COMBINATION PROJECTED · CASEMENTS 100 · PER · CENT · VENTILATED

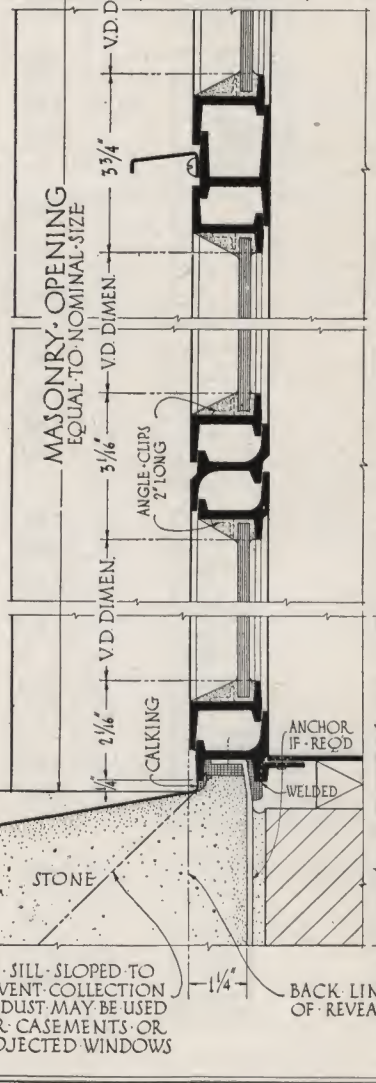
SCALE · FOR · DETAILS ~ 3″ = 1′~0″



SEC. · THRU HEAD · OF OUT · AT · SIDE VENTILATOR



SEC. · A · THRU · HEAD



For Full · Size · Sections see · pages · 29 & 30

SEC. · B · THRU · MEETING · RAIL ·

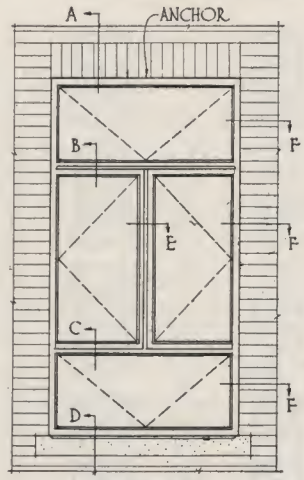
V.D. Dimens. are · the · vertical distances · between · sight · lines.

SEC. · C · THRU · MEETING · RAIL ·

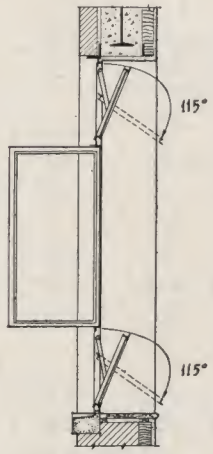
SEC. · D THRU · SILL ·

A · SILL · SLOPED · TO PREVENT · COLLECTION OF · DUST · MAY · BE · USED FOR · CASEMENTS · OR PROJECTED · WINDOWS

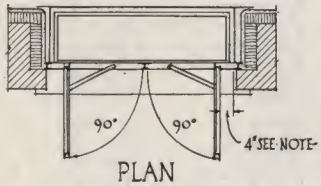
* 12 GA. METAL · STOOL FURNISHED · WHEN · SPECIFIED · AT · AN · INCREASE · IN · PRICE



ELEVATION
VENTILATORS · CLOSED



SECTION
VENTILATORS · OPEN



PLAN
VENTILATORS · OPEN

SCALE 1/4″ — 1′-0″

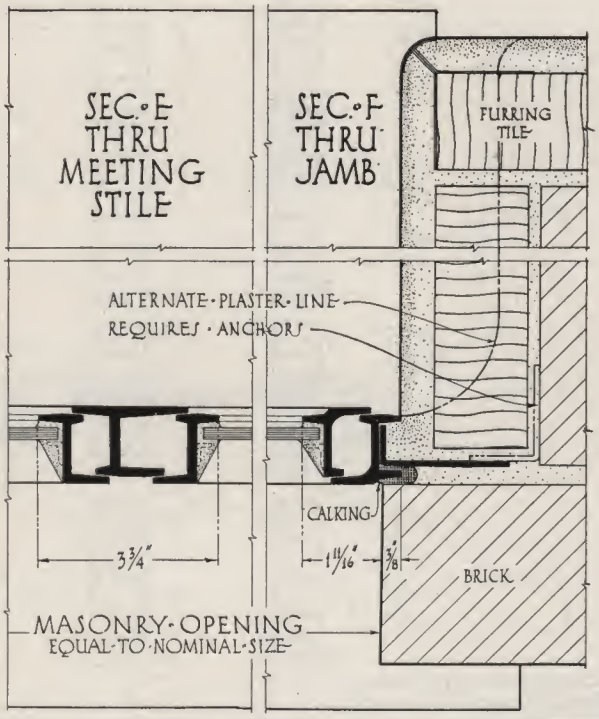
NOTE

In at top ventilators open ~ approximately 115° to permit cleaning from inside.

Out at side ventilators have approximately 4 inches clearance at jamb when open to permit cleaning from inside the building.

SEC. · E THRU MEETING STILE

SEC. · F THRU JAMB



Standard and special sizes look alike in the walls. Save the difference in costs

Continued on next page

PROJECTED • CASEMENTS
100 PER • CENT • VENTILATED - IN • AT • TOP

• STANDARD • TYPES • AND • SIZES •

NOMINAL SIZE *	GLASS SIZE	3'-0" / 33¼"	3'-6" / 39¼"	4'-0" / 45¼"	4'-6" / 51¼"	5'-0" / 57¼"	V.D. DIMEN. SEE DETAILS FOR MEASURE POINTS
4'-6"	23¾"						1' – 11 5/32"
	23¾"	PT·3654	PT·4254	PT·4854	PT·5454	PT·6054	1' – 11 5/32"
5'-0"	17¾"						1' – 5 5/32"
	17¾"						1' – 5 5/32"
	15½"	PT·3660	PT·4260	PT·4860	PT·5460	PT·6060	1' – 2 15/16"
5'-6"	19⅝"						1' – 7 3/64"
	19⅝"						1' – 7 3/64"
	17¾"	PT·3666	PT·4266	PT·4866	PT·5466	PT·6066	1' – 5 5/32"
6'-0"	22⅝"						1' – 10 3/64"
	22⅝"						1' – 10 3/64"
	17¾"	PT·3672	PT·4272	PT·4872	PT·5472	PT·6072	1' – 5 5/32"
6'-6"	25⅝"						2' – 1 3/64"
	25⅝"						2' – 1 3/64"
	17¾"	PT·3678	PT·4278	PT·4878	PT·5478	PT·6078	1' – 5 5/32"
7'-0"	25⅝"						2' – 1 3/64"
	25⅝"						2' – 1 3/64"
	23¾"	PT·3684	PT·4284	PT·4884	PT·5484	PT·6084	1' – 11 5/32"
7'-6"	19⅝"						1' – 7 3/64"
	19⅝"						1' – 7 3/64"
	19⅝"						1' – 7 3/64"
	19⅝"	PT·3690	PT·4290	PT·4890	PT·5490	PT·6090	1' – 7 3/64"
8'-0"	19⅝"						1' – 7 3/64"
	22⅝"						1' – 10 3/64"
	22⅝"						1' – 10 3/64"
	19⅝"	PT·3696	PT·4296	PT·4896	PT·5496	PT·6096	1' – 7 3/64"
8'-6"	19⅝"						1' – 7 3/64"
	25⅝"						2' – 1 3/64"
	25⅝"						2' – 1 3/64"
	19⅝"	PT·36102	PT·42102	PT·48102	PT·54102	PT·60102	1' – 7 3/64"
9'-0"	25⅝"						2' – 1 3/64"
	25⅝"						2' – 1 3/64"
	25⅝"						2' – 1 3/64"
	19⅝"	PT·36108	PT·42108	PT·48108	PT·54108	PT·60108	1' – 7 3/64"

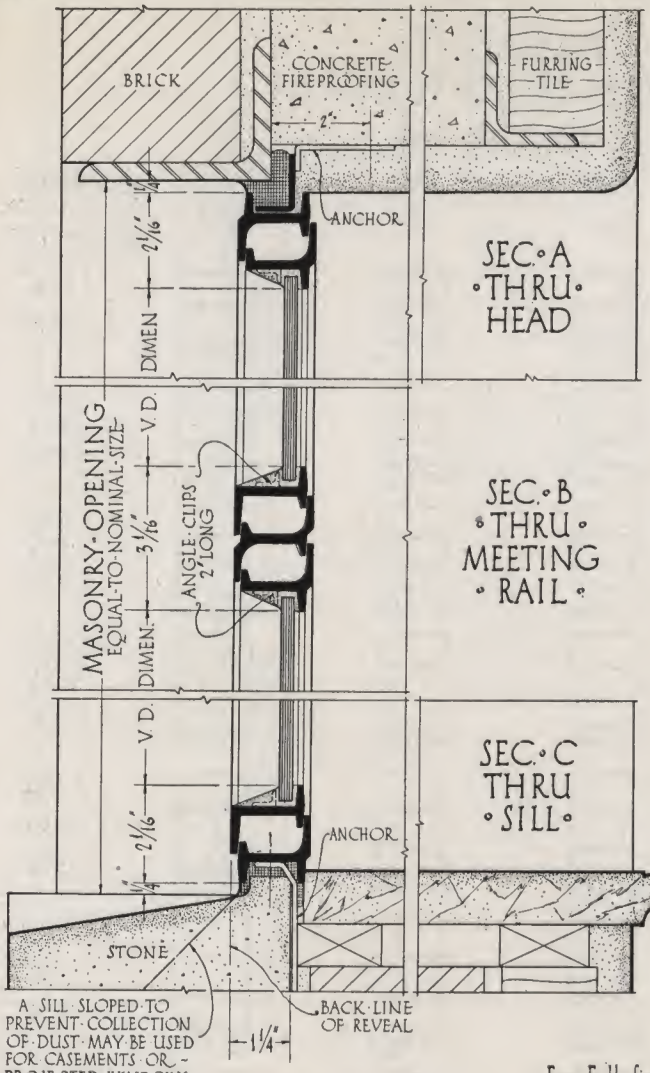
* Nominal Size equals Masonry Opening required for one unit.

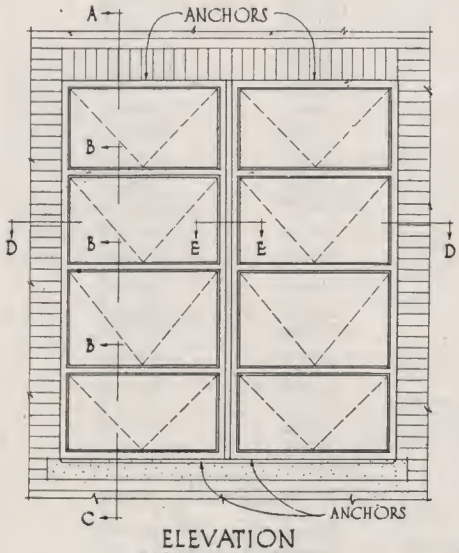
Use standard sizes for quicker deliveries—lower costs

Continued on next page

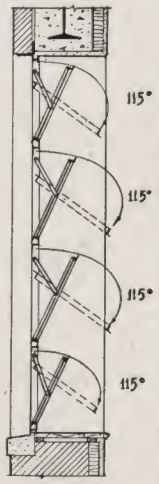
PROJECTED • CASEMENTS 100 PER • CENT • VENTILATED • IN • AT • TOP •

SCALE • FOR • DETAILS ~ 3" — 1'-0"





ELEVATION
VENTILATORS • CLOSED



SECTION
VENTILATORS • OPEN

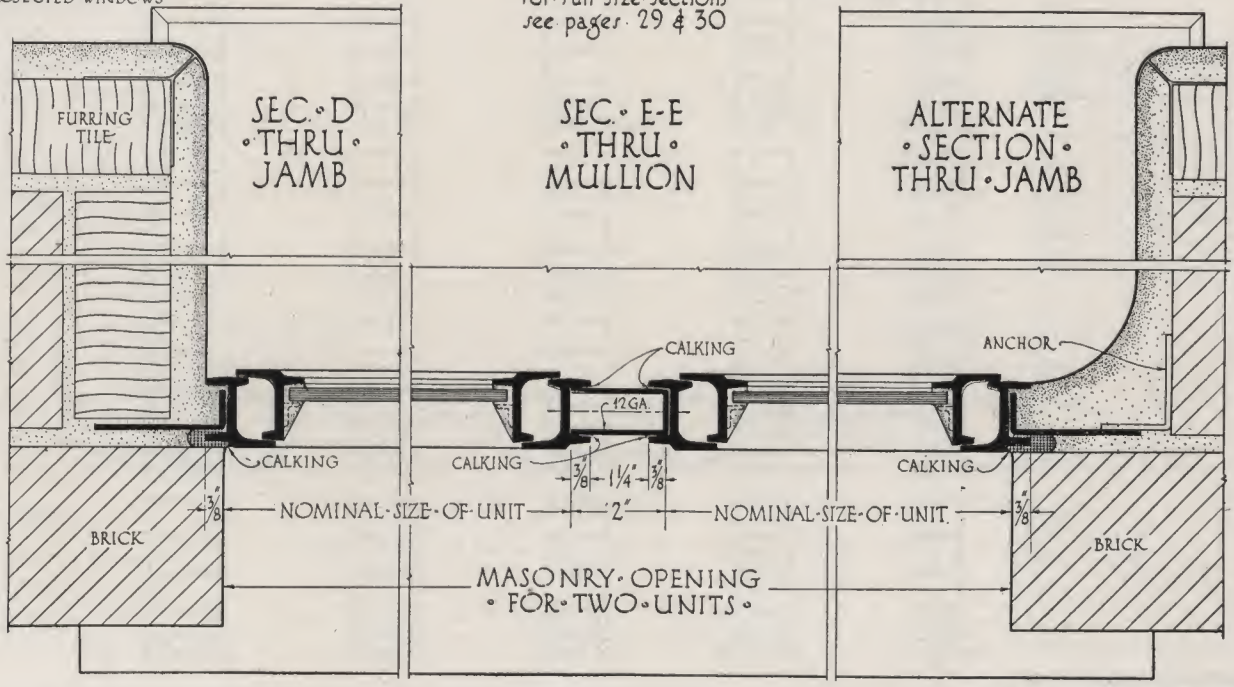
SCALE - 1/4" — 1'-0"

• NOTE •

Ventilators open approximately 115° to permit cleaning to be done from inside the building

V. D. Dimens are the vertical distances — between sight lines

For Full Size Sections see pages 29 & 30

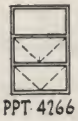
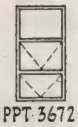
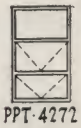
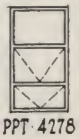
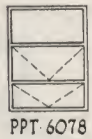
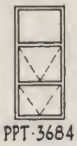
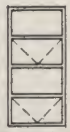


Standard sizes cost less than specials

Continued on next page

PROJECTED • CASEMENTS
PART • VENTILATED - IN • AT • TOP

LISTED • SPECIAL • TYPES • IN • STANDARD • SIZES

NOMINAL SIZE *	GLASS SIZE	3'-0" / 33¼"	3'-6" / 39¼"	4'-0" / 45¼"	4'-6" / 51¼"	5'-0" / 57¼"	V.D. DIMEN. SEE DETAILS FOR MEASURE POINTS
4' – 6"	23¾"	 PPT 3654	 PPT 4254	 PPT 4854	 PPT 5454	 PPT 6054	1' – 11 5/32"
	23¾"						1' – 11 5/32"
5' – 0"	19"	 PPT 3660	 PPT 4260	 PPT 4860	 PPT 5460	 PPT 6060	1' – 6 13/32"
	17¾"						1' – 5 5/32"
	15½"						1' – 2 15/16"
5' – 6"	20⅞"	 PPT 3666	 PPT 4266	 PPT 4866	 PPT 5466	 PPT 6066	1' – 8 19/64"
	19⅝"						1' – 7 3/64"
	17¾"						1' – 5 5/32"
6' – 0"	23⅞"	 PPT 3672	 PPT 4272	 PPT 4872	 PPT 5472	 PPT 6072	1' – 11 19/64"
	22⅝"						1' – 10 3/64"
	17¾"						1' – 5 5/32"
6' – 6"	26⅞"	 PPT 3678	 PPT 4278	 PPT 4878	 PPT 5478	 PPT 6078	2' – 2 19/64"
	25⅝"						2' – 1 3/64"
	17¾"						1' – 5 5/32"
7' – 0"	26⅞"	 PPT 3684	 PPT 4284	 PPT 4884	 PPT 5484	 PPT 6084	2' – 2 19/64"
	25⅝"						2' – 1 3/64"
	23¾"						1' – 11 5/32"
7' – 6"	20⅞"	 PPT 3690	 PPT 4290	 PPT 4890	 PPT 5490	 PPT 6090	1' – 8 19/64"
	19⅝"						1' – 7 3/64"
	21⅝"						1' – 9 3/64"
	19⅝"						1' – 7 3/64"
8' – 0"	20⅞"	 PPT 3696	 PPT 4296	 PPT 4896	 PPT 5496	 PPT 6096	1' – 8 19/64"
	22⅝"						1' – 10 3/64"
	24⅝"						2' – 0 3/64"
	19⅝"						1' – 7 3/64"
8' – 6"	20⅞"	PPT 36102	PPT 42102	PPT 48102	PPT 54102	PPT 60102	1' – 8 19/64"
	25⅝"						2' – 1 3/64"
	27⅝"						2' – 3 3/64"
	19⅝"						1' – 7 3/64"
9' – 0"	26⅞"	PPT 36108	PPT 42108	PPT 48108	PPT 54108	PPT 60108	2' – 2 19/64"
	25⅝"						2' – 1 3/64"
	27⅝"						2' – 3 3/64"
	19⅝"						1' – 7 3/64"

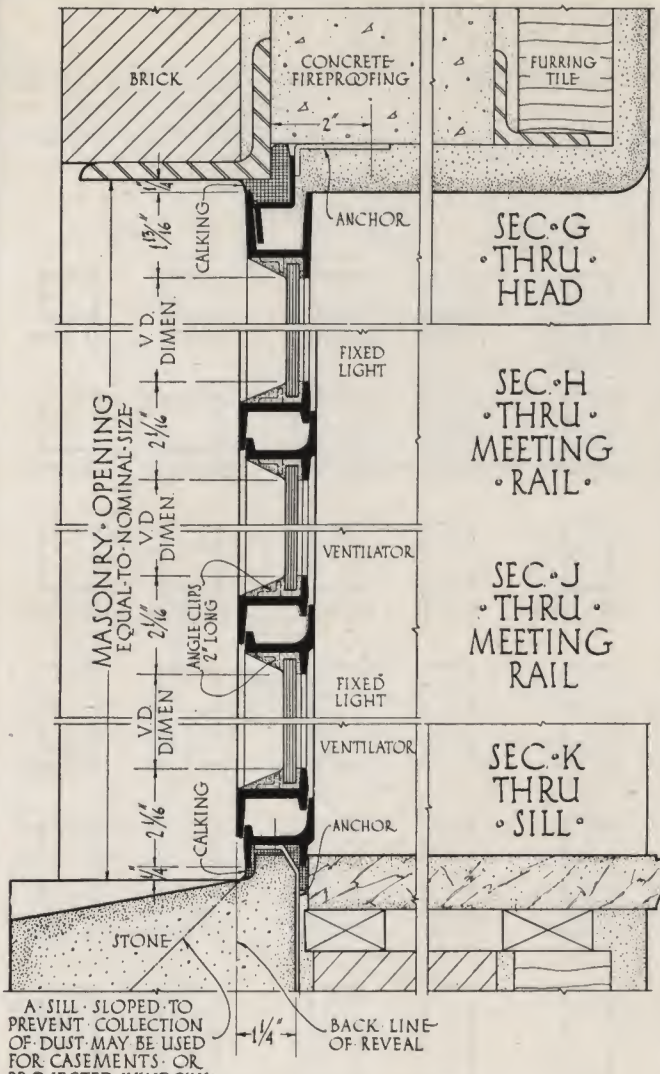
* Nominal Size equals Masonry Opening required for one unit

For quick deliveries, use standard sizes

Continued on next page

PROJECTED · CASEMENTS PART · VENTILATED IN · AT · TOP

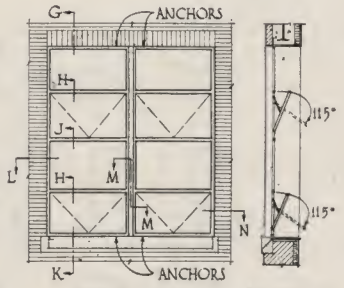
SCALE · FOR · DETAILS ~ 3″ — 1′-0″



· NOTE ·
In at top ventilators open approximately 115° to permit cleaning to be done from inside the building

V.D Dimensions are the vertical distances between sight lines.

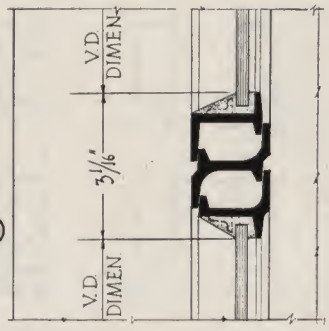
For Full Size Sections see pages 29 & 30



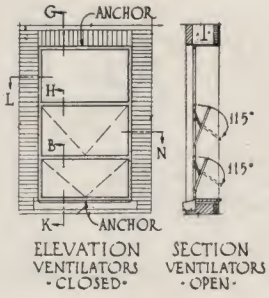
ELEVATION VENTILATORS · CLOSED ·

SECTION VENTILATORS · OPEN ·

SCALE 1/8″ — 1′-0″

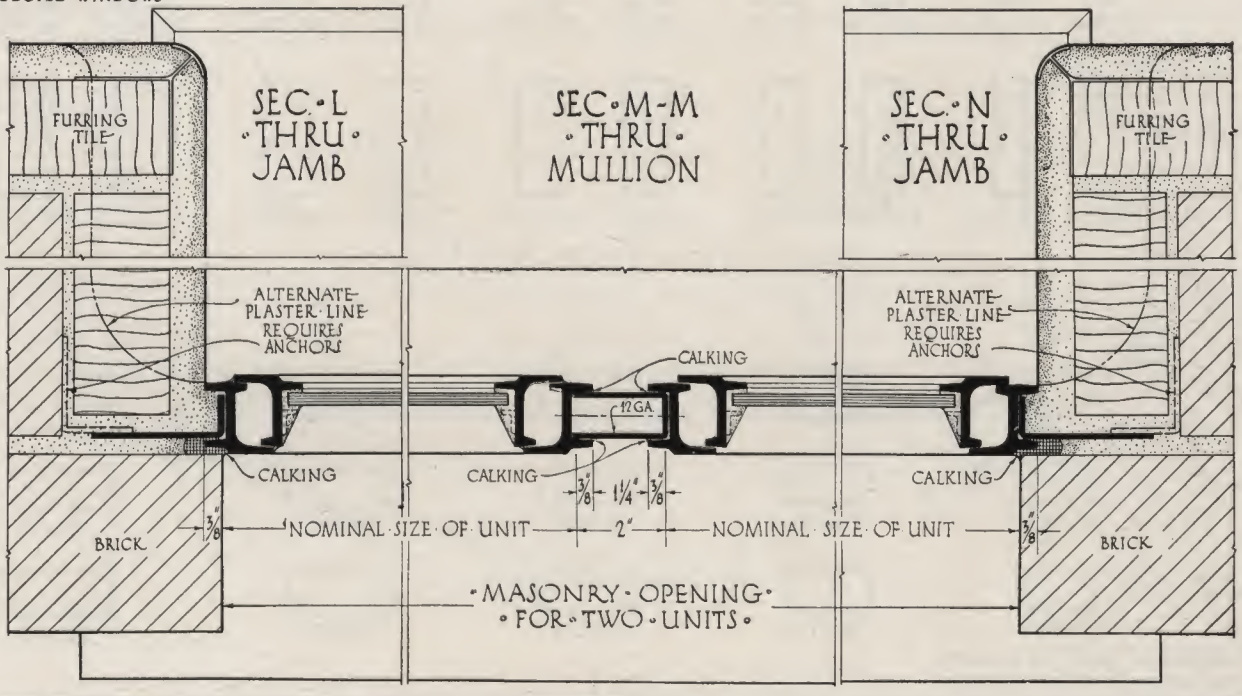


· SEC · B · THRU · MEETING · RAIL



ELEVATION VENTILATORS · CLOSED ·

SECTION VENTILATORS · OPEN ·



For lower costs use standard sizes

Continued on next page

SINGLE · PROJECTED · CASEMENTS

STANDARD · TYPES · AND · SIZES

ALL · ELEVATIONS · SHOWN ON · THIS · PAGE · ARE — OUTSIDE · ELEVATIONS ~

PROJECTED · OUT · AT · SIDE

NOMINAL SIZE *	GLASS SIZE	1'-6"	1'-9"	2'-0"		2'-3"	2'-6"
				Left Hand Casement	Right Hand Casement		
		15¼"	18¼"	21¼"		24¼"	27¼"
2'-0"	20"	PSL·1824 PSR·1824	PSL·2124 PSR·2124	PSL·2424	PSR·2424	PSL·2724 PSR·2724	PSL·3024 PSR·3024
2'-6"	26"	PSL·1830 PSR·1830	PSL·2130 PSR·2130	PSL·2430	PSR·2430	PSL·2730 PSR·2730	PSL·3030 PSR·3030
3'-0"	32"	PSL·1836 PSR·1836	PSL·2136 PSR·2136	PSL·2436	PSR·2436	PSL·2736 PSR·2736	PSL·3036 PSR·3036
3'-6"	38"	PSL·1842 PSR·1842	PSL·2142 PSR·2142	PSL·2442	PSR·2442	PSL·2742 PSR·2742	PSL·3042 PSR·3042
4'-0"	44"	PSL·1848 PSR·1848	PSL·2148 PSR·2148	PSL·2448	PSR·2448	PSL·2748 PSR·2748	PSL·3048 PSR·3048
4'-6"	50"	PSL·1854 PSR·1854	PSL·2154 PSR·2154	PSL·2454	PSR·2454	PSL·2754 PSR·2754	PSL·3054 PSR·3054
5'-0"	56"	PSL·1860 PSR·1860	PSL·2160 PSR·2160	PSL·2460	PSR·2460	PSL·2760 PSR·2760	PSL·3060 PSR·3060

PROJECTED · OUT · AT · BOTTOM

NOMINAL SIZE *	GLASS SIZE	3'-2"	3'-8"	4'-2"	4'-8"	5'-2"
		35¼"	41¼"	47¼"	53¼"	59¼"
1'-6"	14"	PB·3818	PB·4418	PB·5018	PB·5618	PB·6218
1'-9"	17"	PB·3821	PB·4421	PB·5021	PB·5621	PB·6221
2'-0"	20"	PB·3824	PB·4424	PB·5024	PB·5624	PB·6224

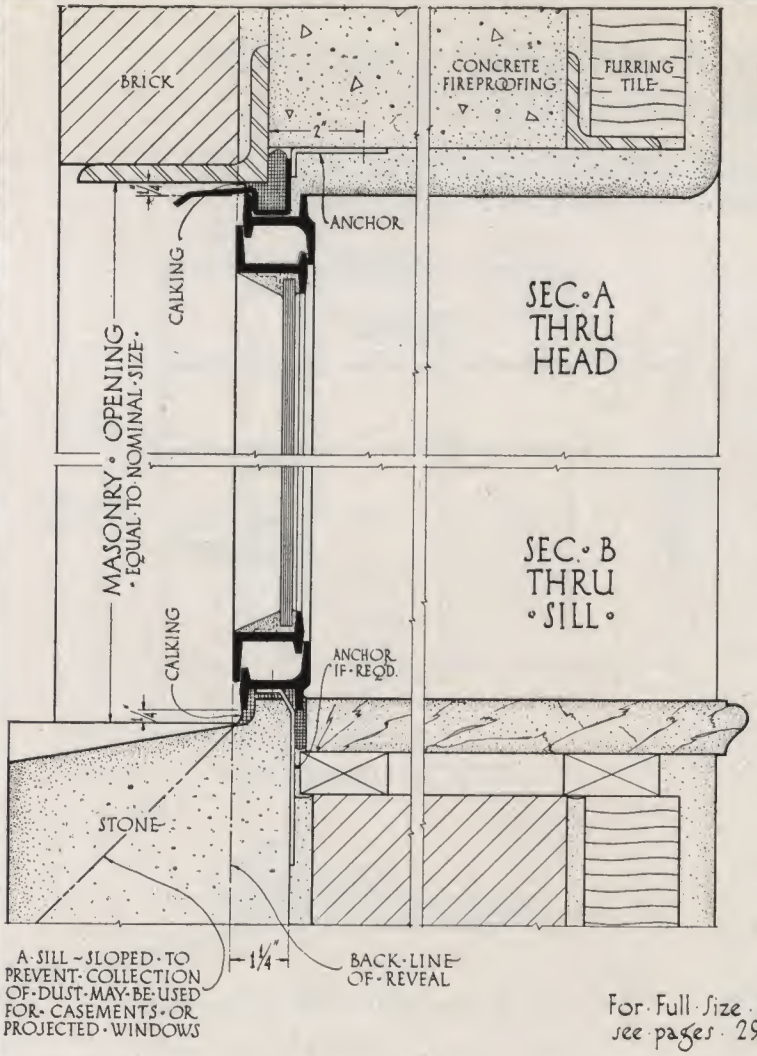
* Nominal Size equals the Masonry Opening required for one unit.

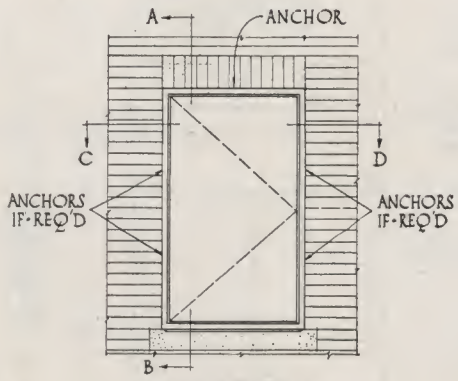
Standard sizes reduce costs of windows, lintels, sills, shades, awnings and screens

Continued on next page

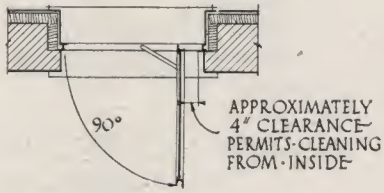
SINGLE PROJECTED · CASEMENTS OUT·AT·SIDE

SCALE·FOR·DETAILS ~ 3"—1'-0"





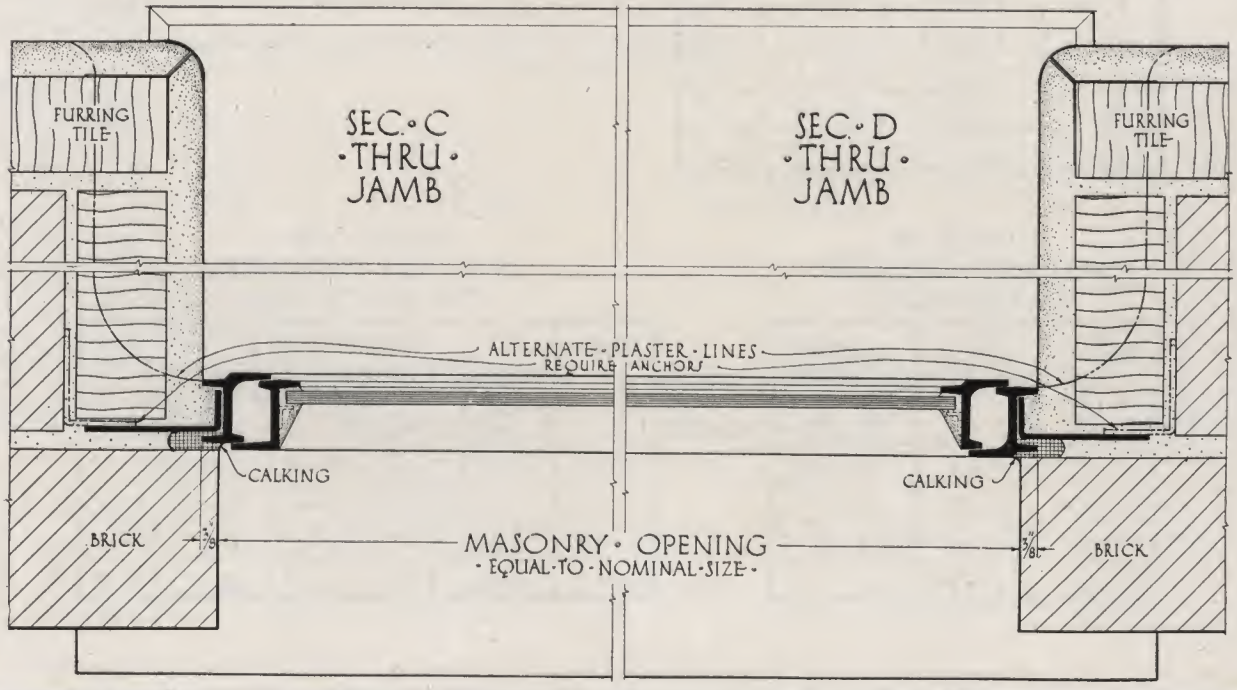
· ELEVATION ·
VENTILATOR·CLOSED



· PLAN ·
VENTILATOR·OPEN

SCALE ~ ¼"—1'-0"

For·Full·Size·Sections see·pages·29 & 30

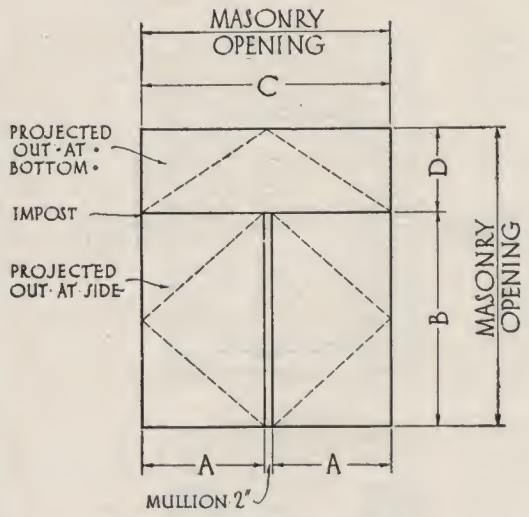


A special is an odd size between two less expensive standards

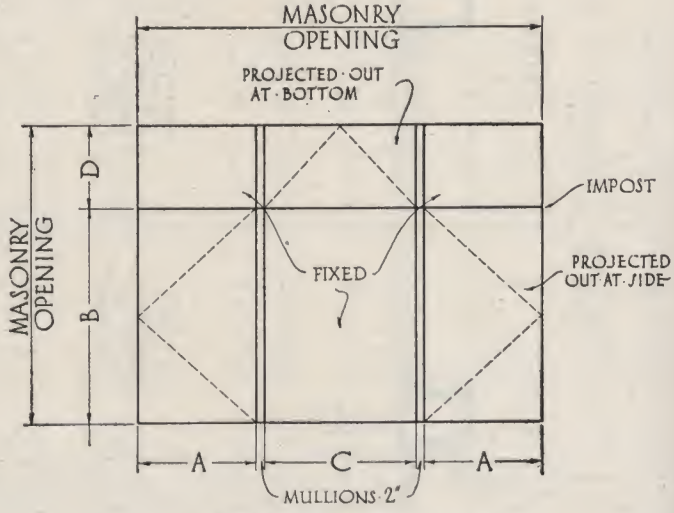
Continued on next page

WIDTHS & HEIGHTS OF MASONRY OPENINGS FOR COMPOSITE WINDOWS

TABLES GIVING MASONRY OPENING DIMENSIONS FOR TWO TYPICAL DESIGNS OF COMPOSITE WINDOWS



TYPICAL ELEVATION I



TYPICAL ELEVATION II

HEIGHTS OF MASONRY OPENINGS FOR ELEVATIONS I & II

DIMEN. B	DIMENSION D		
	1'-6"	1'-9"	2'-0"
2'-0"	3'-6"	3'-9"	4'-0"
2'-6"	4'-0"	4'-3"	4'-6"
3'-0"	4'-6"	4'-9"	5'-0"
3'-6"	5'-0"	5'-3"	5'-6"
4'-0"	5'-6"	5'-9"	6'-0"
4'-6"	6'-0"	6'-3"	6'-6"
5'-0"	6'-6"	6'-9"	7'-0"

NOTE

See Lupton page 25 for units used in combinations shown on this page. ~

A = Nominal Width of Side Projected Unit.

B = Nominal Height of Side Projected Unit.

C = Nominal Width of Bottom Projected Unit.

D = Nominal Height of Bottom Projected Unit.

WIDTHS OF MASONRY OPENINGS FOR ELEVATION I

DIMEN. A	DIMEN. C	MASONRY OPENING
1'-6"	3'-2"	3'-2"
1'-9"	3'-8"	3'-8"
2'-0"	4'-2"	4'-2"
2'-3"	4'-8"	4'-8"
2'-6"	5'-2"	5'-2"

WIDTHS OF MASONRY OPENINGS FOR ELEVATION II

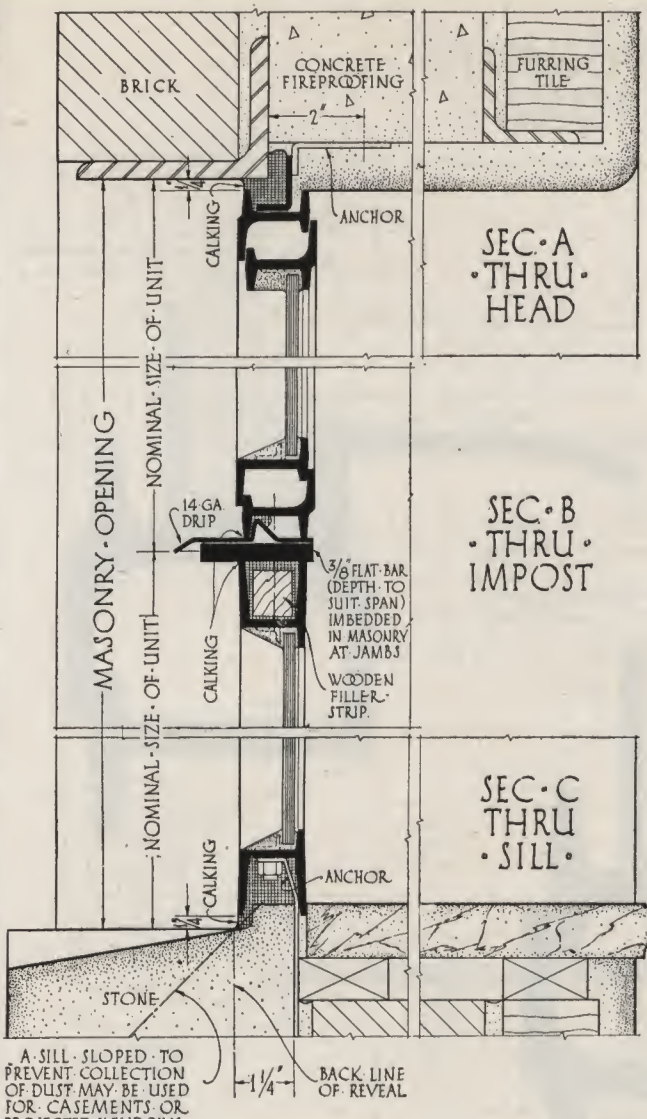
DIMEN. A	DIMENSION C				
	3'-2"	3'-8"	4'-2"	4'-8"	5'-2"
1'-6"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"
1'-9"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"
2'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"
2'-3"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"
2'-6"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"

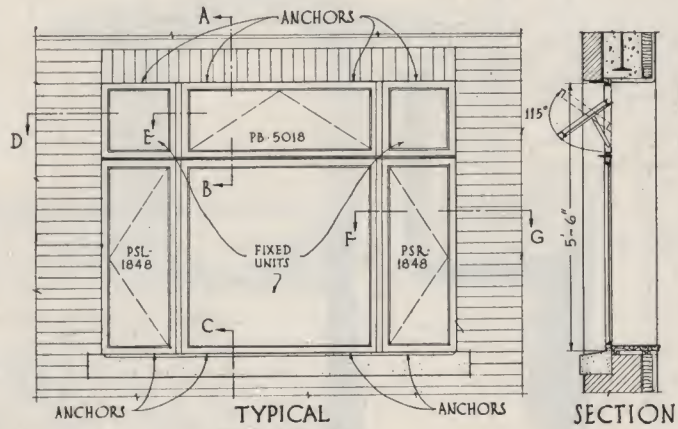
Standard and special sizes look alike in the walls. Save the difference in costs

Continued on next page

COMPOSITE · WINDOWS
SINGLE · PROJECTED · CASEMENTS
COMBINED · WITH · FIXED · UNITS

SCALE · FOR · DETAILS - 3" — 1'-0"



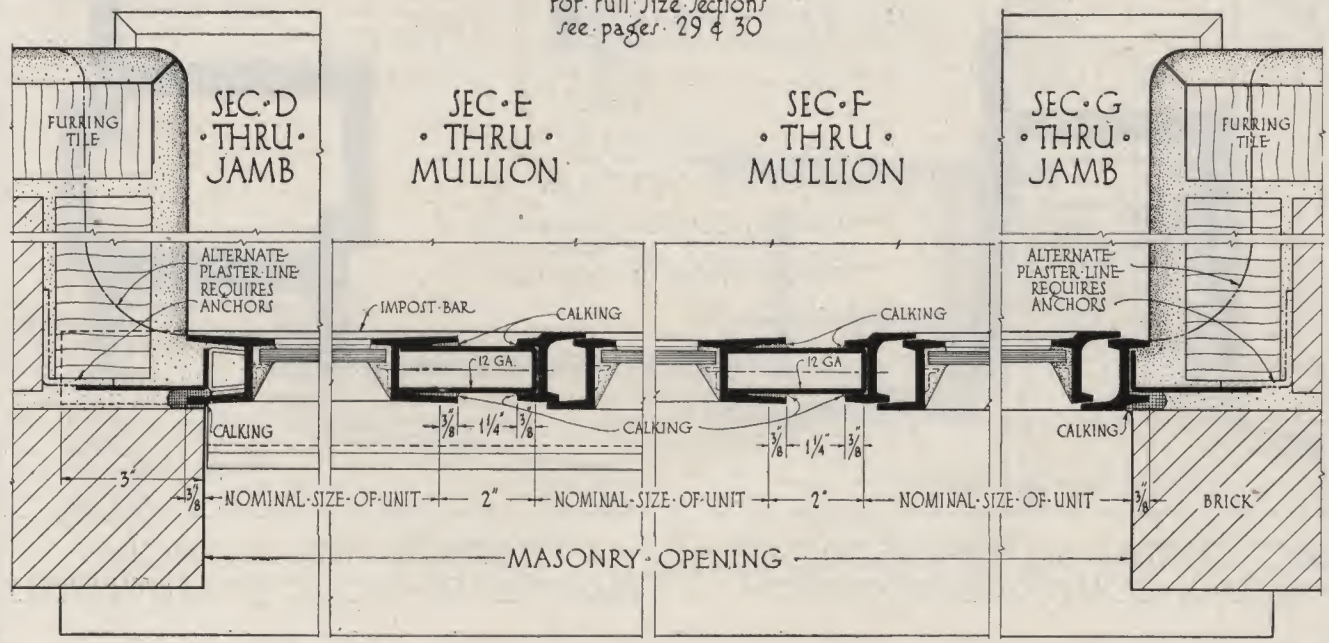


· NOTES ·

1- Several · Single · Projected · Casements · can · be · combined · in · one · opening · by · using · the · impost · and - mullion · details · shown · on · this · sheet - Fixed · units in · sizes · to · meet · the · requirements · of · the · design · are readily · furnished · altho · not · carried · in · stock.

2- Out · at · bottom · ventilators · open · approximately 115° to · permit · cleaning · from · inside · the · building

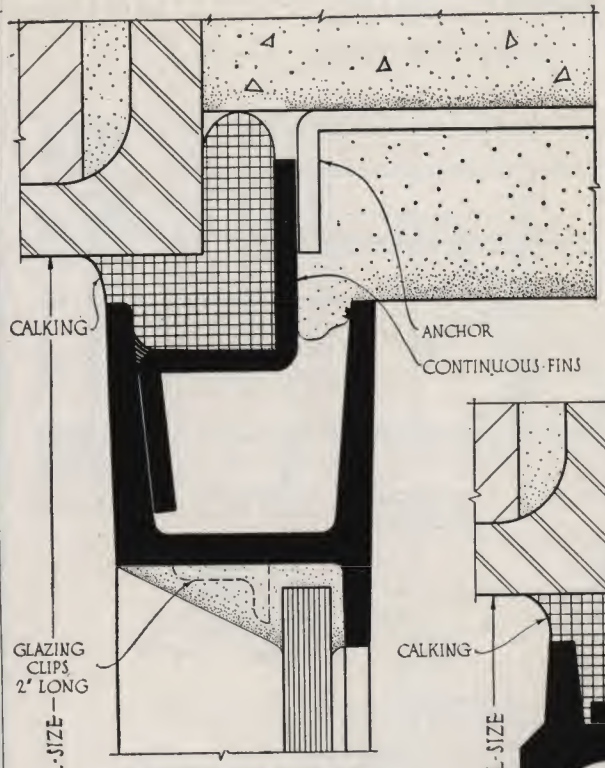
For · Full · Size · Sections see · pages · 29 & 30



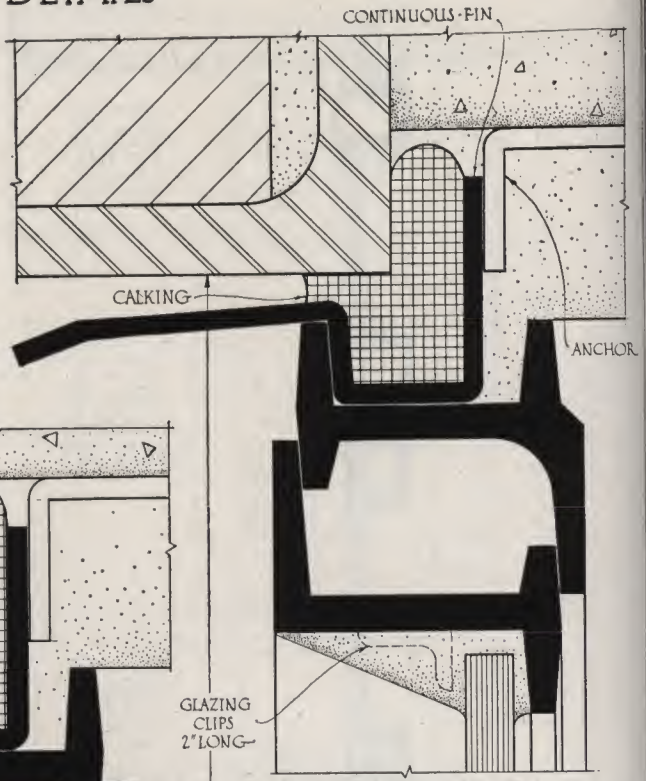
Use standard sizes for quicker deliveries—lower costs

Continued on next page

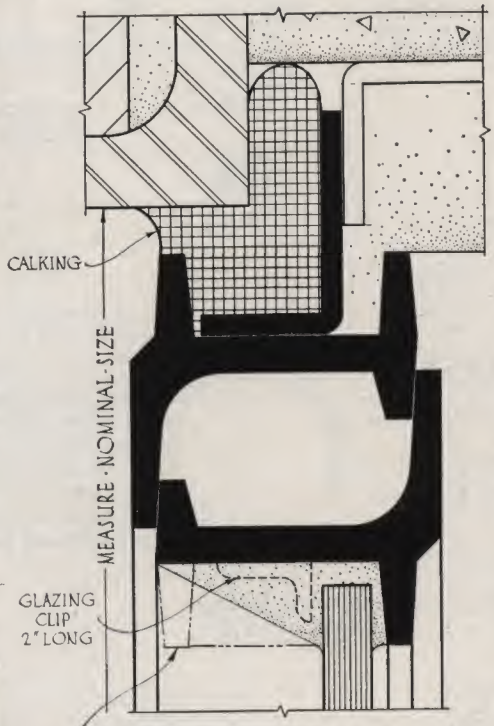
PROJECTED • CASEMENTS
• FULL • SIZE • DETAILS •



SEC • THRU • HEAD OF • FIXED • LIGHT

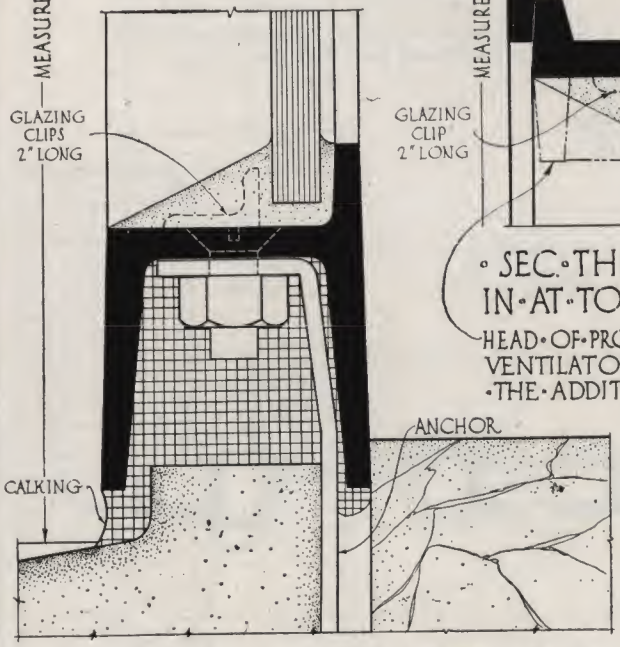


• SEC • THRU • HEAD • OF • PROJECTED • OUT • AT • SIDE • VENTILATOR •

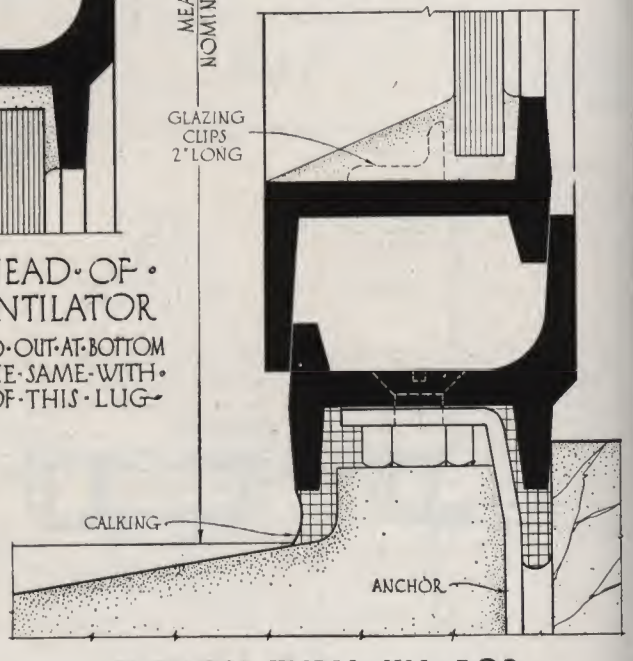


• SEC • THRU • HEAD • OF • IN • AT • TOP • VENTILATOR

HEAD • OF • PROJECTED • OUT • AT • BOTTOM VENTILATOR • IS • THE • SAME • WITH • • THE • ADDITION • OF • THIS • LUG •



SECTION • THRU • SILL • OF • FIXED • LIGHT • USED • IN • COMPOSITE • WINDOWS •

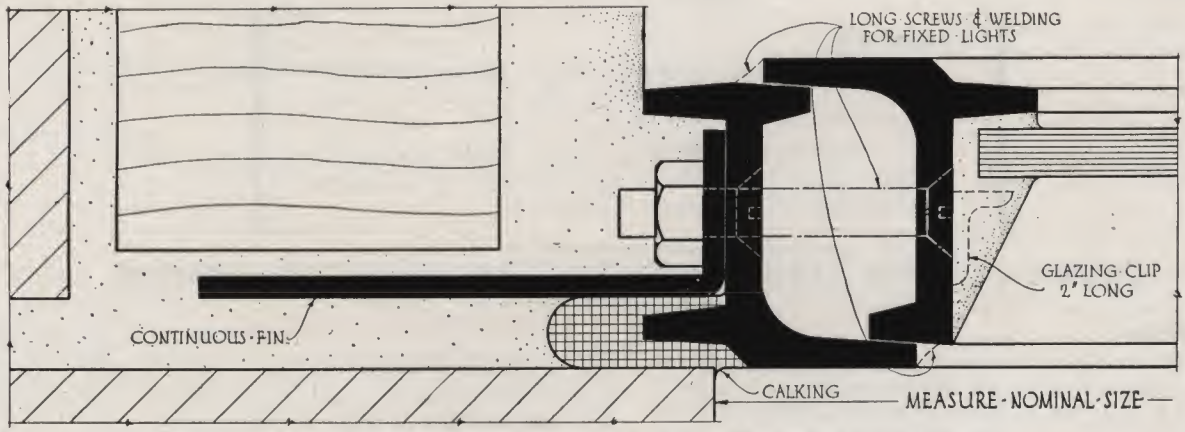


SECTION • THRU • SILL • FOR • ALL • TYPES • OF • PROJECTED • VENTILATORS

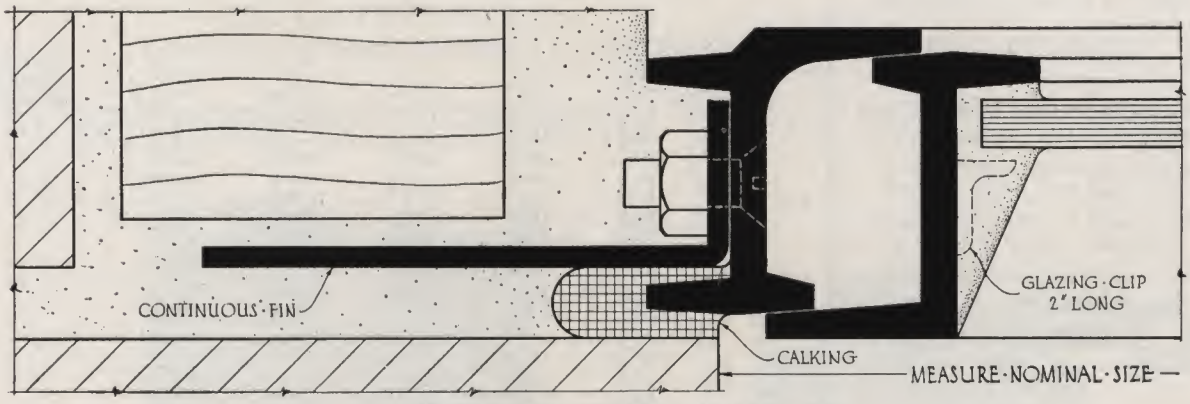
Standard sizes cost less than specials

Continued on next page

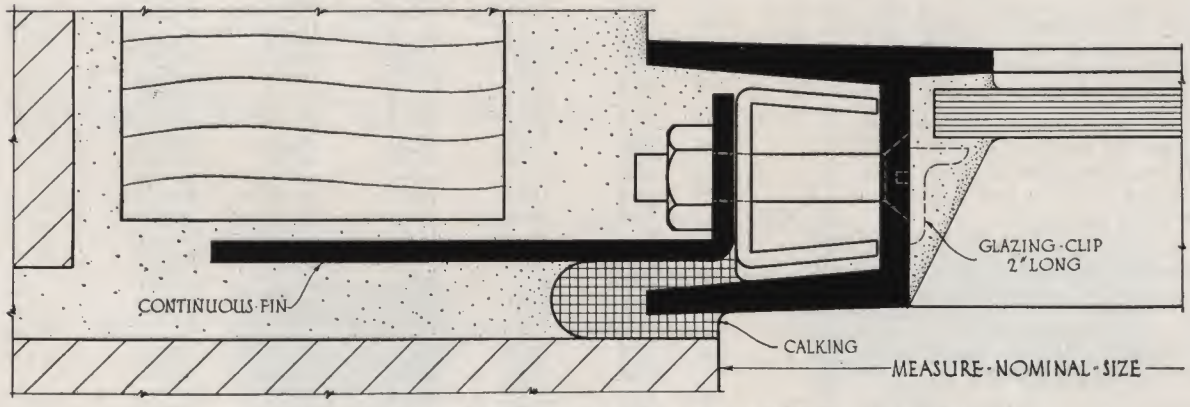
PROJECTED • CASEMENTS • FULL • SIZE • DETAILS •



SEC. THRU JAMB OF IN AT TOP VENTILATOR
PROJECTED OUT AT SIDE VENTILATOR
OR FIXED LIGHT



SECTION THRU JAMB OF
PROJECTED OUT AT SIDE VENTILATORS OR
PROJECTED OUT AT BOTTOM VENTILATOR



SECTION THRU JAMB OF FIXED LIGHT
USED IN COMPOSITE WINDOWS.

For quick deliveries, use standard sizes

LUPTON ARCHITECTURAL PROJECTED WINDOWS (OUTSIDE GLAZED)

Some buildings, or parts of buildings, because of limits in cost or because of other restrictions will not permit the use of the windows previously described. In such cases, Lupton Architectural Projected Windows, made of medium weight sections, will often fill the requirements of good ventilation and lighting with entire satisfaction.

Important

Wall details for Outside Glazed Architectural Projected Windows are NOT the same as for the Inside Glazed Windows. See pages 34 and 38. Also, glass sizes are different although both outside and inside glazed windows are made in the same 50 standard nominal sizes. See pages 31 and 35.

SPECIFICATION FOR LUPTON ARCHITECTURAL PROJECTED WINDOWS

(Outside Glazed)

Work Included

1. Furnish and install where shown on drawings, Lupton Steel Architectural Projected Windows (outside putty glazed), manufactured by David Lupton's Sons Co., Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate, for the architect's approval, complete shop and installation drawings. These shall show scaled section of window and frame members, details of construction, hardware, anchoring, etc.

Materials

3. Frame members shall be heavy, specially designed, solid steel channel section.

4. Ventilator members shall be specially designed, solid steel angle sections.

5. Muntins shall be specially designed, solid steel cruciform section 1⅜ in. deep.

6. Vertical mullions shall be specially designed solid steel H section.

Note: Structural steel members forming Imposts are not furnished by the window manufacturer.

Construction

7. All Architectural Projected Windows shall be designed for outside glazing.

8. Both Frames and Ventilators shall be assembled by tenoned, riveted and welded joints at the corners. Continuous, two-point, flat contact weathering shall be provided between ventilators and frames.

9. Muntin Bars shall be attached to frame members by tenoned, riveted joints and shall be so interlocked at their intersections that the strength and rigidity at the intersection is increased.

10. Vertical Mullions and bolts for attachment shall be provided where two or more windows are placed side by side.

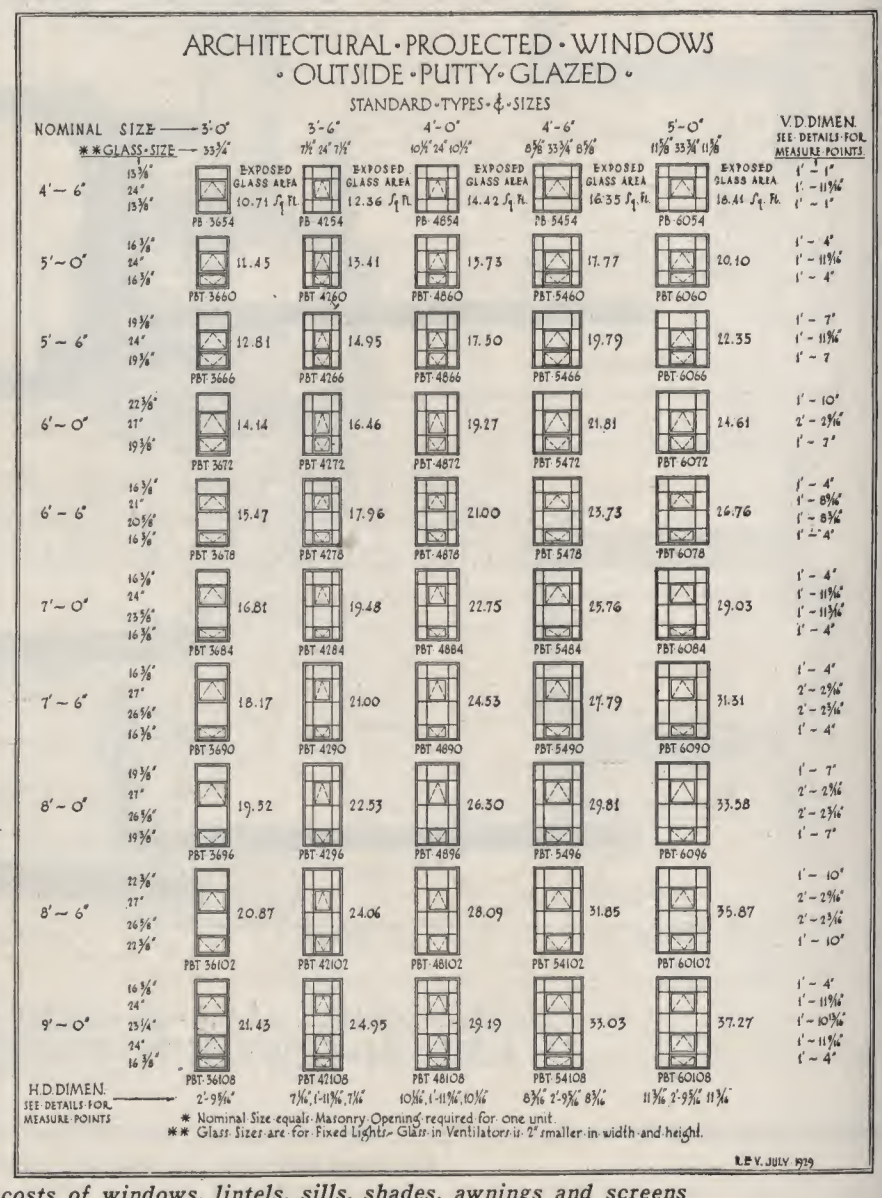
11. Fins of 12 gauge steel for head and 14 gauge steel for jamb shall be furnished and attached in factory.

12. Anchor Clips of 14 gauge steel for jamb, sill and head shall be furnished and applied in field.

13. Each ventilator shall be accurately pivoted on two ventilator arms of solid steel. The connections between the ventilator arms and the window frames shall be made by steel arm blocks.

14. Each ventilator shall be equipped with two brass friction shoes, sliding vertically in the ventilator jambs to guide the ventilator and prevent rattling. Each shoe shall be equipped with a rustproofed, flat steel spring attached to the ventilator to insure constant pressure at the jambs.

15. Universal Clip shall be an angle clip 1⅛ in. x 1 in., 2 in. long riveted to the ventilator frame to provide for attaching cam handle.



Standard sizes reduce costs of windows, lintels, sills, shades, awnings and screens

Hardware

16. All handles shall be bronze with natural bronze finish.

17. All bronze hardware (listed below) shall be shipped unattached, carefully packed to prevent damage until applied for use.

Note: The following hardware is standard:

For Projected-Out-at-Bottom Ventilators

Bronze Cam Handle—when handle is within reach from floor.

Bronze Ring Type Cam Handle and Bronze Pull Down Ring—when handle is beyond reach from floor.

For Projected-In-at-Top Ventilators

Bronze Cam Handle.

Calking Cement

18. The window manufacturer shall furnish non-staining elastic calking cement for mullions as shown in window manufacturer's standard details.

Note: See note at end of specification.

Erection

19. All Architectural Projected Windows (outside glazed) shall be erected in prepared openings by the window contractor unless otherwise specified.

20. All Architectural Projected Windows (outside glazed) shall be set plumb and true, properly aligned and securely anchored before glazing. Mullions shall be bolted securely to Frames. Calking cement shall be neatly applied at mullions as shown on window manufacturer's standard details.

Note: See note at end of specification.

Note: Include in the masonry specification that all masonry openings shall be accurately constructed in accordance with the installation details for Architectural Projected Windows (outside glazed). Note that when the continuous fins are built in the masonry, the placing of the furring tile at the Jambs must be delayed until after the windows are set. All grouting, pointing, etc., should be done by the mason contractor after the windows are set.

Painting

21. All Architectural Projected Windows shall receive one shop coat of window manufacturer's standard dark gray paint, oven-dried.

Note: See page 1.

Glass and Glazing

Note: (See also page 1). Specify glass and glazing under proper heading elsewhere in specifications.

(a) Do not specify single thickness glass.

(b) Specify a high-grade steel window putty (ordinary wood sash putty must not be used.)

(c) Specify that Lupton Architectural Projected Windows shall be glazed from the outside, the glass shall be set in a bed of putty and held by Lupton standard wire glazing clips.

NOTE

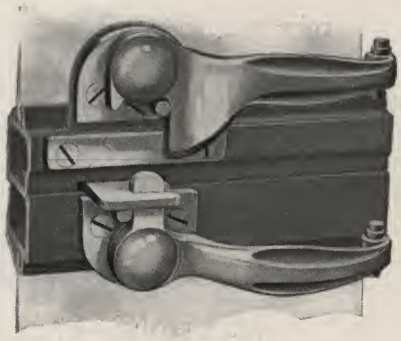
Calking furnished at added cost:

1. When specified non-staining elastic calking cement will be furnished for calking at head jambs and sill.

2. Erectors will apply this calking cement at time of erection at the points indicated in the standard details, only when such application is specified.

HARDWARE FOR LUPTON ARCHITECTURAL PROJECTED WINDOWS

Handles and Pull-down Rings Are Bronze with Natural Bronze Finish

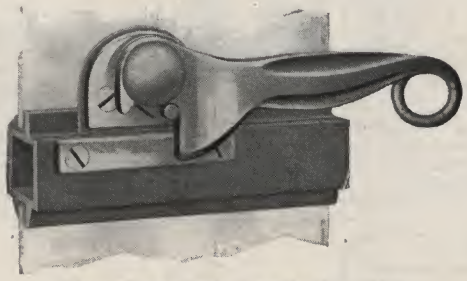


Cam Handle No. 268

(at top)

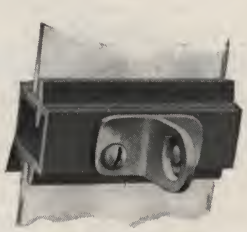
Used on Projected-Out-at-Bottom ventilators within reach from floor. Mounted on Universal Clip riveted to frame of ventilator.

Lower handle No. 266 shown in combination with No. 268 and illustrates its application at meeting rail condition.



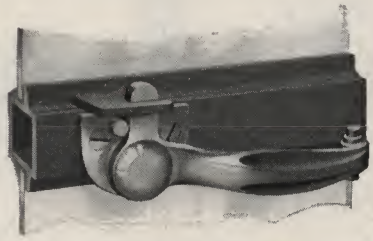
Ring Type Cam Handle No. 328

Used at center of Projected-Out-at-Bottom ventilators beyond reach from floor. For pole operation. Mounted on universal clip riveted to frame of ventilator.



Pull-down Ring No. 251

Used on Projected-Out-at-Bottom ventilators. For pole operation.



Cam Handle No. 266

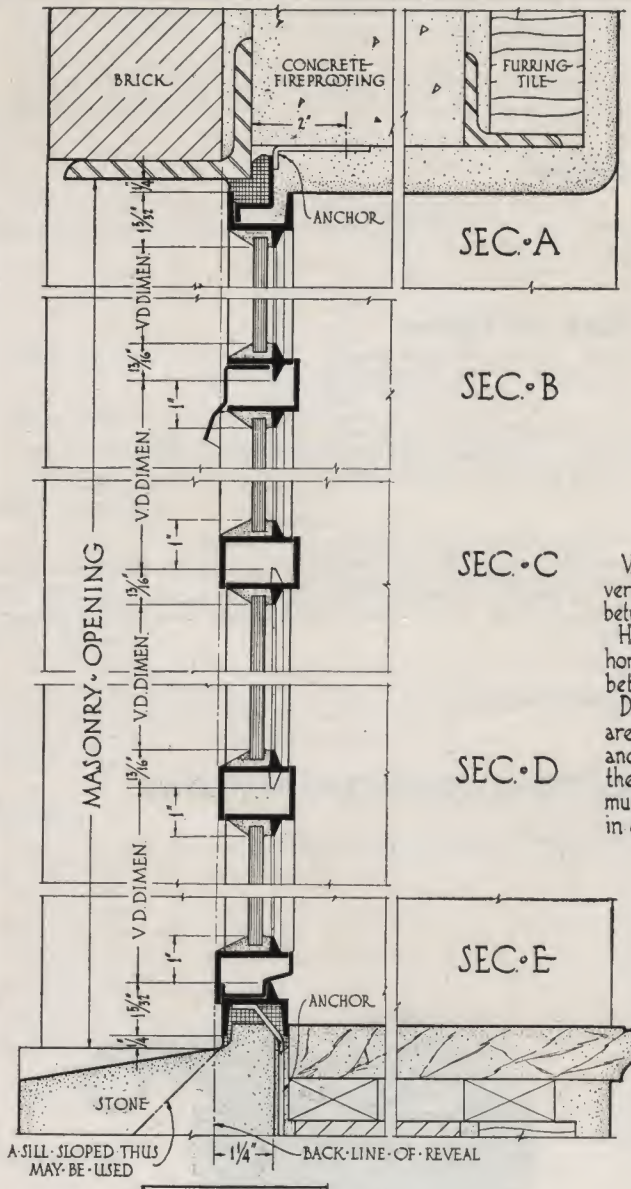
Used on Projected-In-at-Top ventilators. Steel keeper welded to frame.

A special is an odd size between two less expensive standards

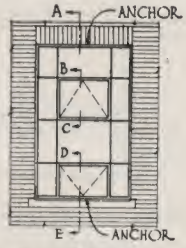
Continued on next page

ARCHITECTURAL • PROJECTED • WINDOWS • OUTSIDE • PUTTY • GLAZED

SCALE • FOR • DETAILS ~ 3″ = 1′-0″



• NOTE •
Ventilators open to positions indicated by dotted lines to permit cleaning from inside the building

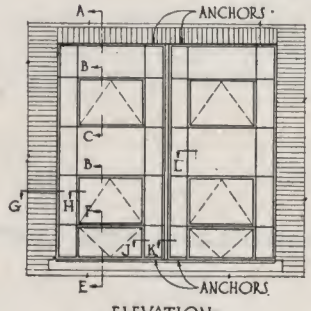


• ELEVATION •
VENTILATORS CLOSED

• SECTION •
VENTILATORS OPEN

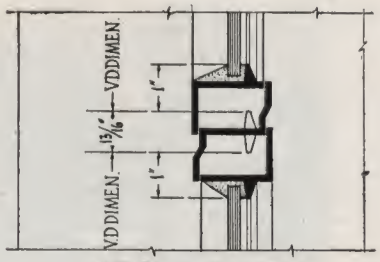
V.D Dimens. are the vertical distances ~ between sight lines.
H.D. Dimens. are the horizontal Distances between sight lines.
Dimensions given are for fixed lights and are measured to the flanges of the muntin bars as shown in details.

SCALE 1/8″ = 1′-0″

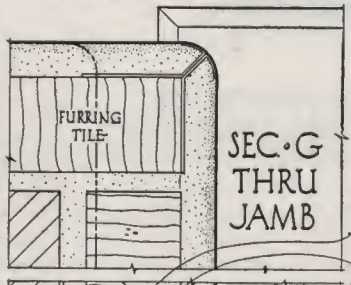


• ELEVATION •
VENTILATORS CLOSED

• SECTION •
VENTILATORS OPEN



SEC. • F • THRU MEETING • RAIL



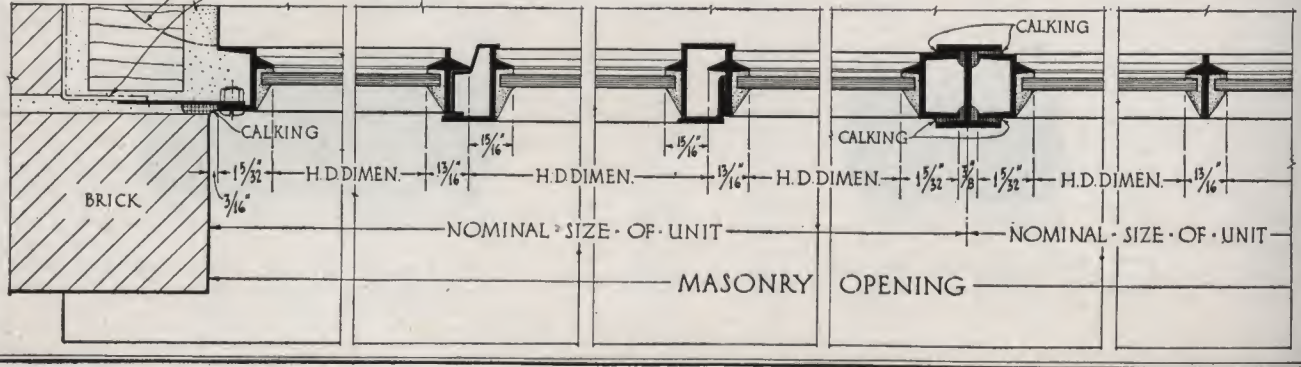
SEC. • G THRU JAMB

SEC. • H

SEC. • J

SEC. • K • THRU MULLION

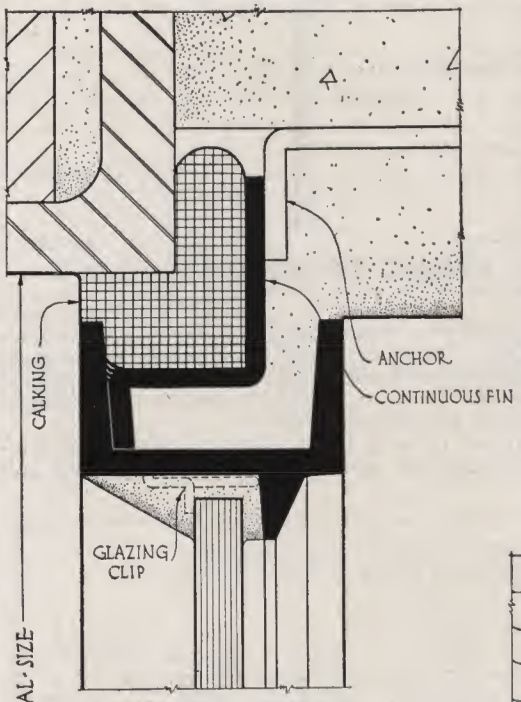
SEC. • L • THRU MUNTIN



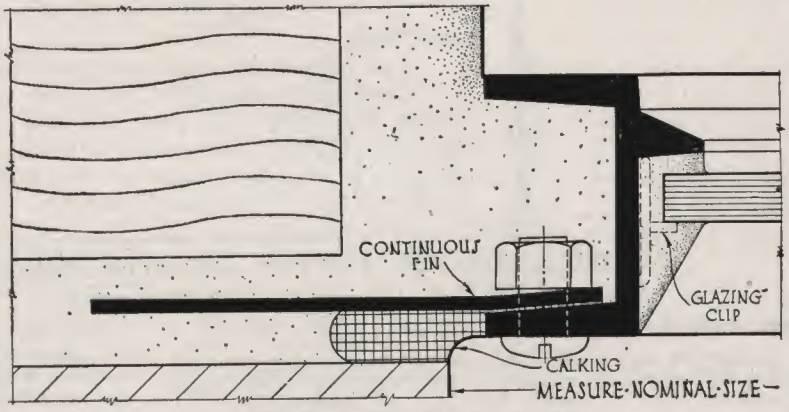
For lower costs use standard sizes

Continued on next page

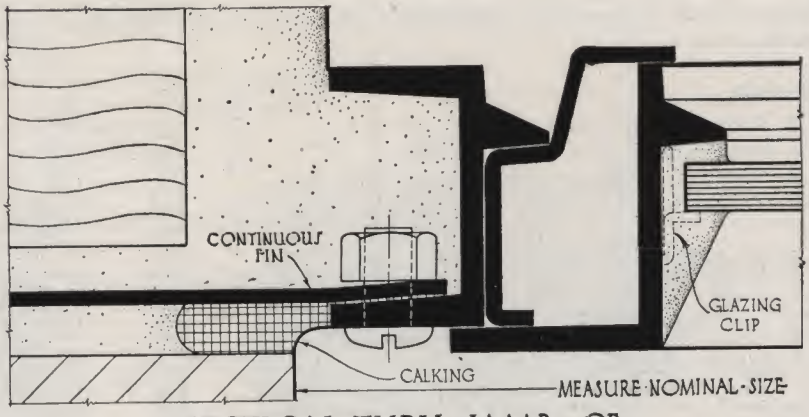
ARCHITECTURAL • PROJECTED • WINDOWS • OUTSIDE • PUTTY • GLAZED • • FULL • SIZE • SECTIONS •



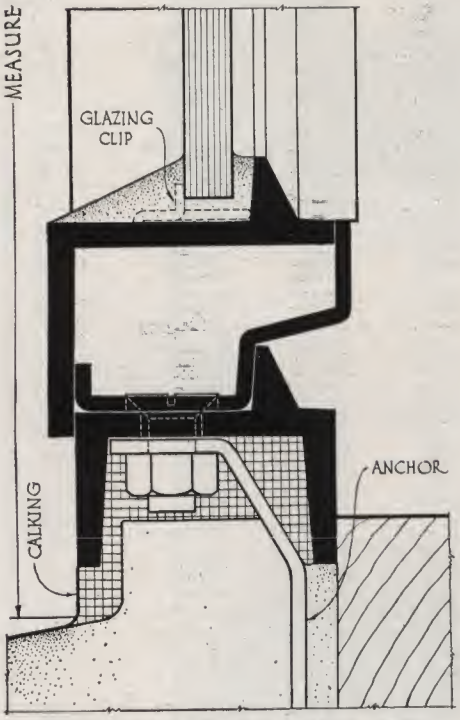
SEC • THRU • HEAD



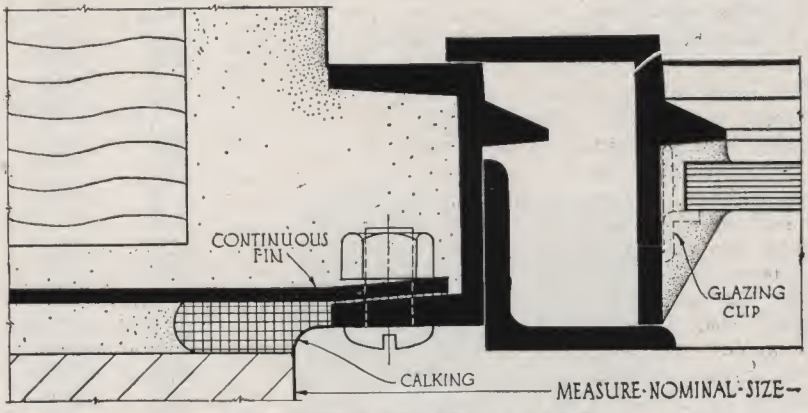
SECTION • THRU • JAMB OF • FIXED • LIGHT



SECTION • THRU • JAMB • OF BOTTOM • PROJECTED • OUT • VENTILATOR



SECTION • THRU • SILL • OF IN • AT • TOP • VENTILATOR



SECTION • THRU • JAMB OF • IN • AT • TOP • VENTILATOR

A special is an odd size between two less expensive standards

Continued on next page

LUPTON ARCHITECTURAL PROJECTED WINDOWS (INSIDE GLAZED)

To meet the requirements of an inside glazed window of medium section, Lupton offers the Architectural Projected Window, Inside Glazed, in fifty standard sizes.

Similar in design and construction to the Outside Glazed Window, it insures like satisfaction in ventilating and daylighting with the additional advantages afforded by metal glazing stops.

Important

Wall details for Inside Glazed Architectural Projected Windows are NOT the same as for Outside Glazed Windows. See pages 34 and 38. Also, glass sizes are different although both outside and inside glazed windows are made in the same 50 standard nominal sizes. See pages 31 and 35.

SPECIFICATION FOR LUPTON ARCHITECTURAL PROJECTED WINDOWS

(Inside Glazed)

Work Included

1. Furnish and install where shown on drawings, Lupton Steel Architectural Projected Windows (inside glazed), manufactured by David Lupton's Sons Co., Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate, for the architect's approval, complete shop and installation drawings. These shall show scaled sections of window and frame members, details of construction, hardware, anchoring, etc.

Materials

3. Frame members shall be heavy, specially designed, solid steel channel section.

4. Ventilator members shall be specially designed, solid steel angle sections.

5. Muntins shall be specially designed, solid steel cruciform section 1⅜ in. deep.

6. Vertical mullions shall be 12 gauge steel, specially designed.

Note: Structural steel members forming Imposts are not furnished by the window manufacturer.

Construction

7. All Architectural Projected Windows shall be designed for inside glazing with glazing angle stops.

8. Both Frames and Ventilators shall be assembled by tenoned, riveted and welded joints at the corners. Continuous, two-point, flat contact weathering shall be provided between ventilators and frames.

9. Muntin Bars shall be attached to frame members by tenoned, riveted joints and shall be so interlocked at their intersections that the strength and rigidity at the intersection is increased.

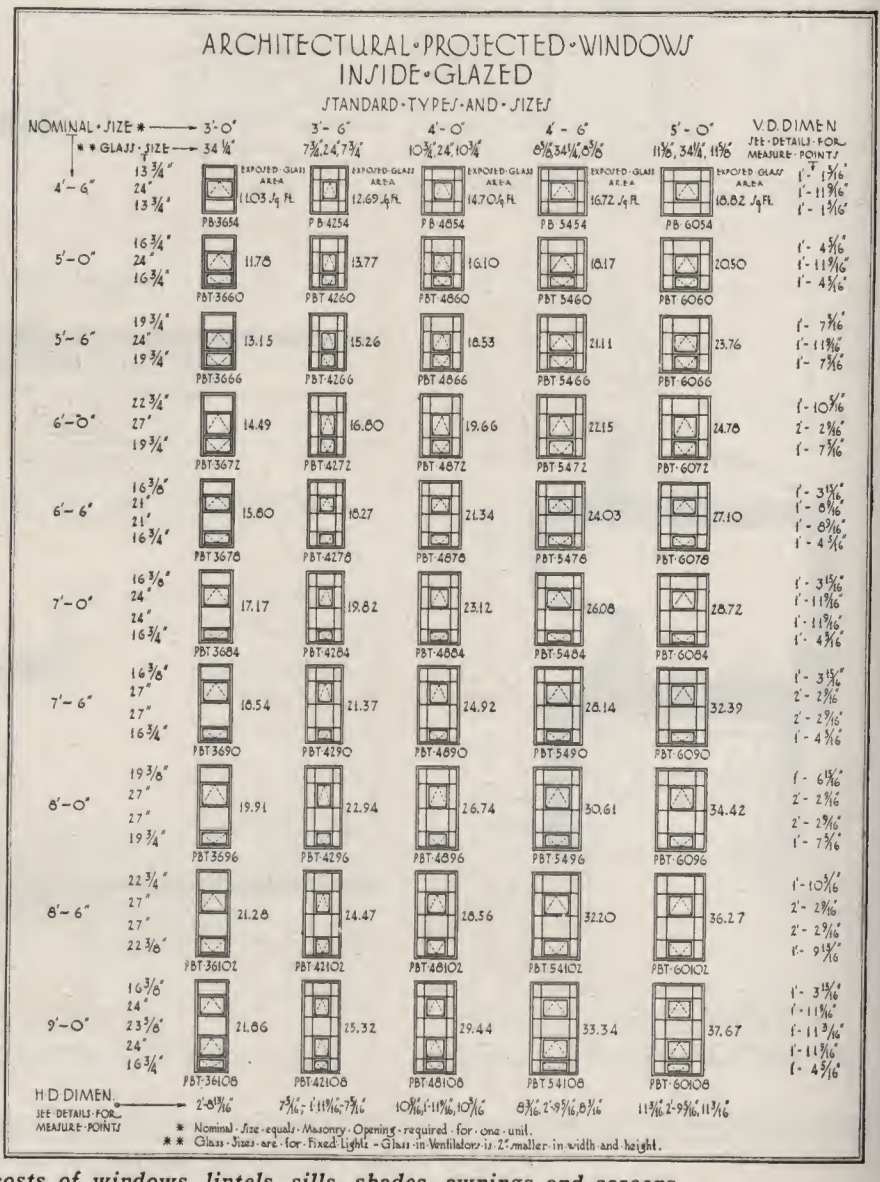
10. Vertical Mullions and bolts for attachment shall be provided where two or more windows are placed side by side.

11. Anchor Clips of 14 gauge steel for jamb, sill and head shall be furnished and applied in field.

12. Each ventilator shall be accurately pivoted on two ventilator arms of solid steel. The connections between the ventilator arms and the window frames shall be made by steel arm blocks.

13. Each ventilator shall be equipped with two brass friction shoes, sliding vertically in the ventilator jambs to guide the ventilator and prevent rattling. Each shoe shall be equipped with a rustproofed, flat steel spring attached to the ventilator to insure constant pressure at the jambs.

14. Universal Clip shall be an angle clip $1\frac{5}{16}$"x1", 2" long riveted to the ventilator frame to provide for attaching cam handle.



Standard sizes reduce costs of windows, lintels, sills, shades, awnings and screens

Continued on next page

Hardware

15. All handles shall be bronze, highly polished and lacquered.

16. All bronze hardware (listed below) shall be shipped unattached, carefully packed to prevent damage until applied for use.

Note: The following hardware is standard:

For Projected-Out-at-Bottom Ventilators

Bronze Cam Handle—when handle is within reach from floor.

Bronze Ring Type Cam Handle and Bronze Pull Down Ring—when handle is beyond reach from floor.

For Projected-In-at-Top Ventilators

Bronze Cam Handle.

Calking Cement

Note: See note at end of specification.

Erection

17. All Architectural Projected Windows (inside glazed) shall be erected in prepared openings by the window contractor unless otherwise specified.

18. All Architectural Projected Windows (inside glazed) shall be set plumb and true, properly aligned and securely anchored before glazing. Mullions shall be bolted securely to frames.

Note: See note at end of specification.

Note: Include in the masonry specification that all masonry openings shall be accurately constructed in accordance with the installation details for Architectural Projected Windows (inside glazed). All grouting, pointing, etc., should be done by the mason contractor after the windows are set.

Painting

19. All Architectural Projected Windows shall receive one shop coat of window manufacturer's standard dark gray paint, oven-dried.

Note: See page 1.

Glass and Glazing

Note: (See also page 1). Specify glass and glazing under proper heading elsewhere in specifications.

(a) Do not specify single thickness glass.

(b) Specify a high grade steel window putty (ordinary wood sash putty must not be used).

(c) Specify that Lupton Architectural Projected Windows shall be glazed from the inside, the glass set in a bed of putty, and held by continuous steel glazing angle stops.

NOTE

Calking furnished at added cost:

1. When specified non-staining elastic calking cement will be furnished for calking.

2. Erectors will apply this calking cement at time of erection at the points indicated in the standard details, only when such application is specified.

HARDWARE FOR LUPTON ARCHITECTURAL PROJECTED WINDOWS

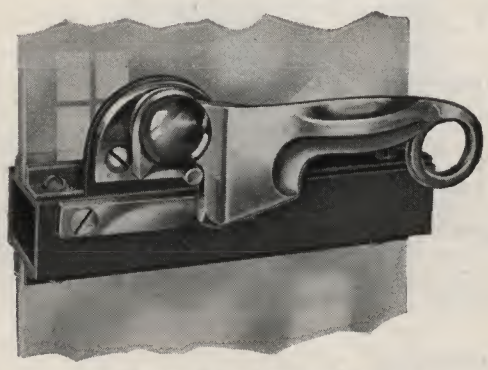
Handles and Pull-down Rings Are Bronze Highly Polished

Cam Handle No. 268

(at top)

Used on Projected-Out-at-Bottom ventilators within reach from floor. Mounted on universal clip riveted to frame of ventilator.

Lower handle No. 266 shown in combination with No. 268 and illustrates its application at meeting rail condition.

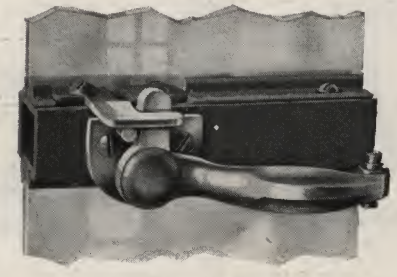


Ring Type Cam Handle No. 328

Used at center of Bottom-Projected-Out ventilators beyond reach from floor. For pole operation. Mounted on universal clip riveted to frame of ventilator.

Pull-down Ring No. 251

Used on Projected-Out-at-Bottom ventilators. For pole operation.



Cam Handle No. 266

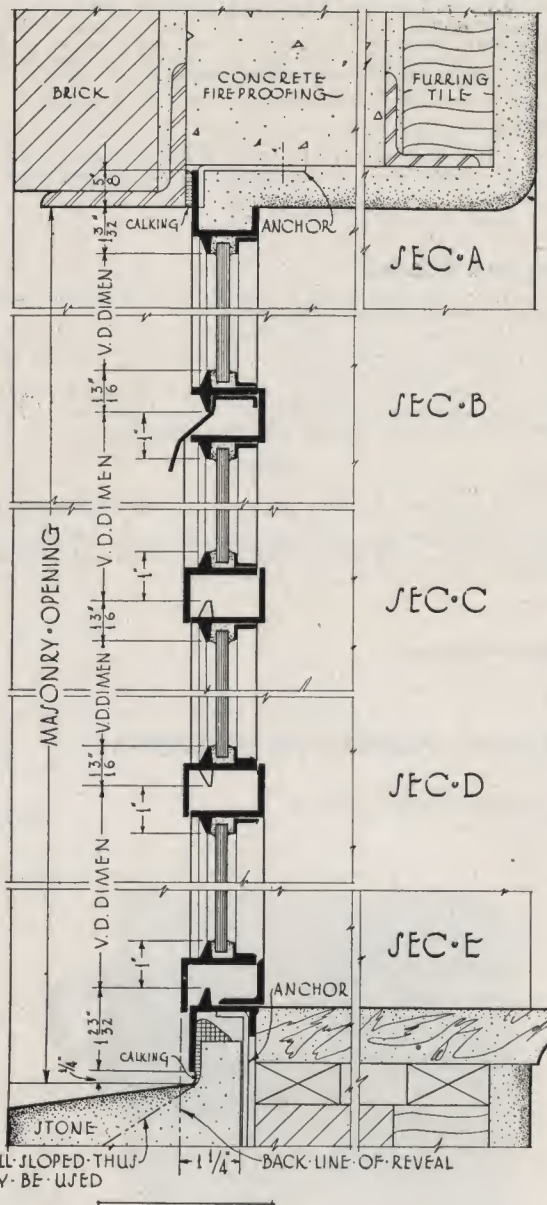
Used on Projected-In-at-Top ventilators.

A special is an odd size between two less expensive standards

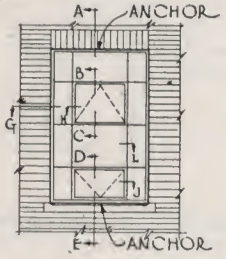
Continued on next page

ARCHITECTURAL • PROJECTED • WINDOWS • INSIDE • GLAZED

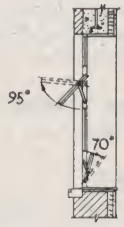
SCALE • FOR • DETAILS – 3" 1'-0"



• NOTE •
Ventilators open to positions indicated by dotted lines to permit cleaning from inside the building.

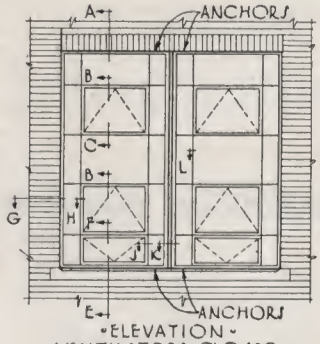


• ELEVATION • VENTILATORS • CLOSED

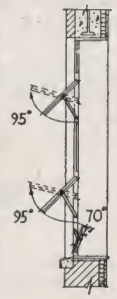


• SECTION • VENTS • OPEN

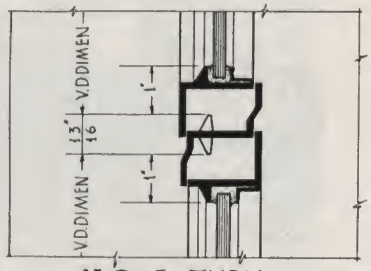
V.D. Dimens are the vertical distances between sight lines.
H.D. Dimens are the horizontal distances between sight lines.
Dimensions given are for fixed lights and are measured to the flanges of the muntin bars as shown in the details.



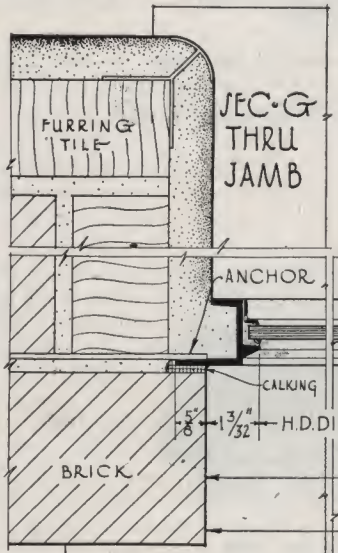
• ELEVATION • VENTILATORS • CLOSED



• SECTION • VENTS • OPEN



SEC • F • THRU MEETING • RAIL



SEC • G THRU JAMB

SEC • H

SEC • J

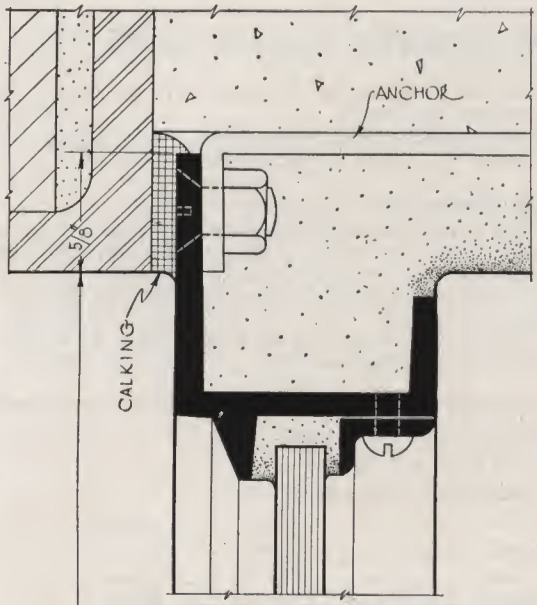
SEC • K • THRU MULLION

SEC • L • THRU MUNTIN

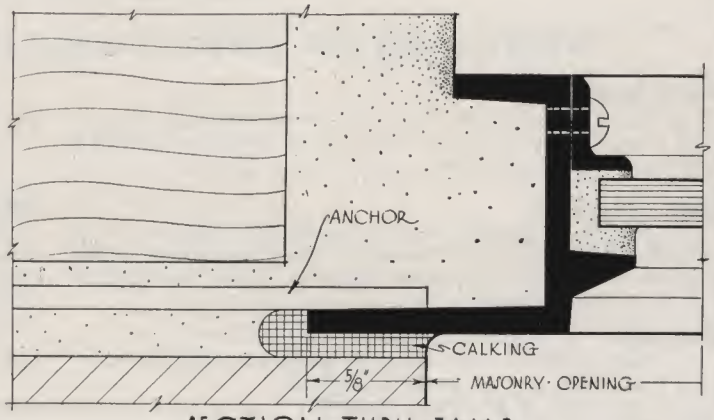
Standard sizes cost less than specials

Continued on next page

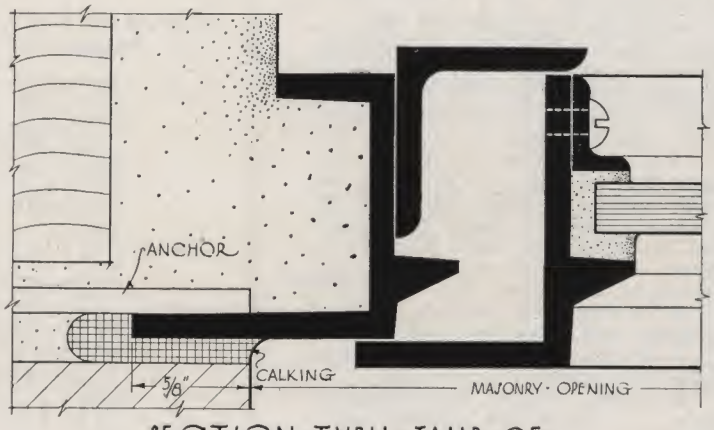
ARCHITECTURAL · PROJECTED · WINDOWS
INSIDE · GLAZED · WITH · GLAZING · ANGLES
FULL · SIZE · SECTIONS



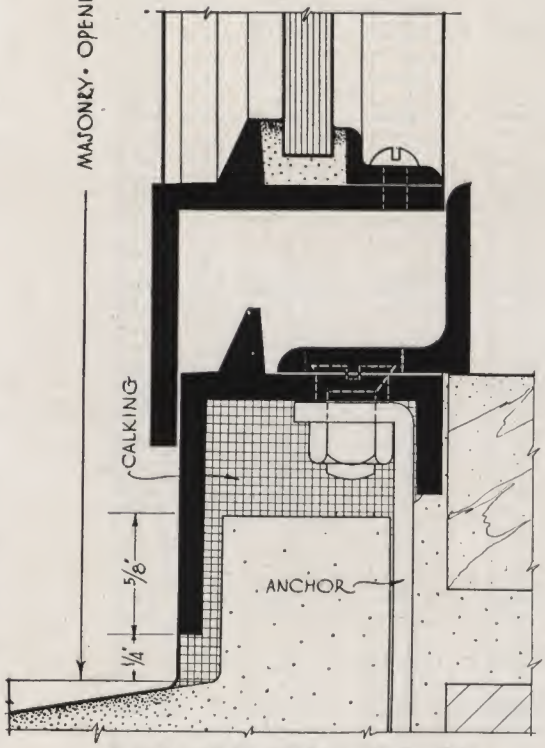
SECTION · THRU · HEAD



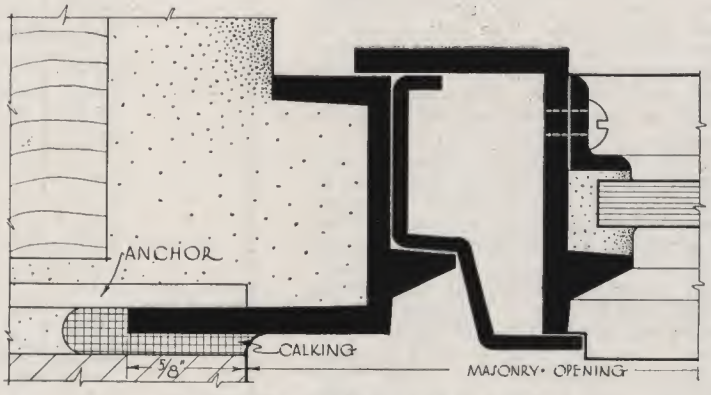
SECTION · THRU · JAMB
OF · FIXED · LIGHT



SECTION · THRU · JAMB · OF
PROJECTED · OUT · AT · BOTTOM · VENTILATOR



SECTION · THRU · SILL · OF
PROJECTED · IN · AT · TOP · VENTILATOR



SECTION · THRU · JAMB · OF
PROJECTED · IN · AT · TOP · VENTILATOR

Use standard sizes for quicker deliveries—lower costs

Continued on next page

LUPTON DOUBLE HUNG WINDOWS

These windows are so designed as to permit the sash to slide up and down easily and at the same time to prevent excessive air infiltration. The frames and sash are made of zinc-coated steel plate. They are furnished with or without muntins. Standard practice includes weather-stripping at jambs but we furnish, at extra cost, additional weather-stripping at head, sill and meeting rail when it is so specified. There are two types, E and F, each in fifty sizes.

Windows without muntins are standard. With muntins arranged as shown on page 36 the window is a "listed special." Muntins arranged any other way make the window special.

SPECIFICATION FOR LUPTON DOUBLE HUNG WINDOWS (Types E and F)

Work Included

1. Furnish and install where shown on drawings, Lupton Steel Double Hung Windows manufactured by David Lupton's Sons Co., Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate, for the architect's approval, complete shop and installation drawings. These shall show scaled sections of window and frame members, details of construction, hardware, anchoring, etc.

Materials

3. Sash members shall be of 14 gauge on windows up to 4 ft. 0 in. wide, and 12 gauge on windows over 4 ft. 0 in. wide. Glazing strips shall be 14 gauge for all rails except bottom rail. The glazing strip for the bottom rail shall be 12 gauge. All sash members shall be cold galvanized strip steel.

4. Frame members (E Type)—Head, head cover, jamb box and removable jamb piece shall be made of 20 gauge and the sill of 16 gauge. All frame members shall be hot galvanized, dull-coated steel sheets.

5. Frame members (F Type)—The head shall be made of 16 gauge, the head cover of 16 gauge, the sill of 12 gauge, the jamb box proper of 14 gauge and the removable jamb piece of 16 gauge. All frame members shall be hot galvanized, dull-coated steel sheets.

6. Parting Strips shall be made of 16 gauge cold galvanized strip steel.

7. Muntin Bars shall be made of 16 gauge cold galvanized strip steel.

8. Muntin Glazing Strips shall be made of 14 gauge cold galvanized strip steel.

Construction

9. Sash members shall be designed with flanges to enter groove in head and jamb boxes. The bottom rail of the lower sash shall form a double contact with the sill member. The meeting rail shall interlock. The sash members shall be mitered and arc welded at all corners.

10. Frame members—The head (exclusive of cover) and sill shall each be made of one piece of steel. The jamb box shall consist of three parts: (1) the box proper, (2) a removable piece for access to weights, (3) a parting strip. The removable piece and the parting strip shall each be in two sections with the joint at the level of the meeting rail. The sash weights shall be separated by a division strip. The frame members shall be coped to fit each other at corners and arc welded.

11. Muntin bars shall be spotwelded to sash members.

12. Muntin Glazing Strips shall be attached to muntins with low round-head machine screws.

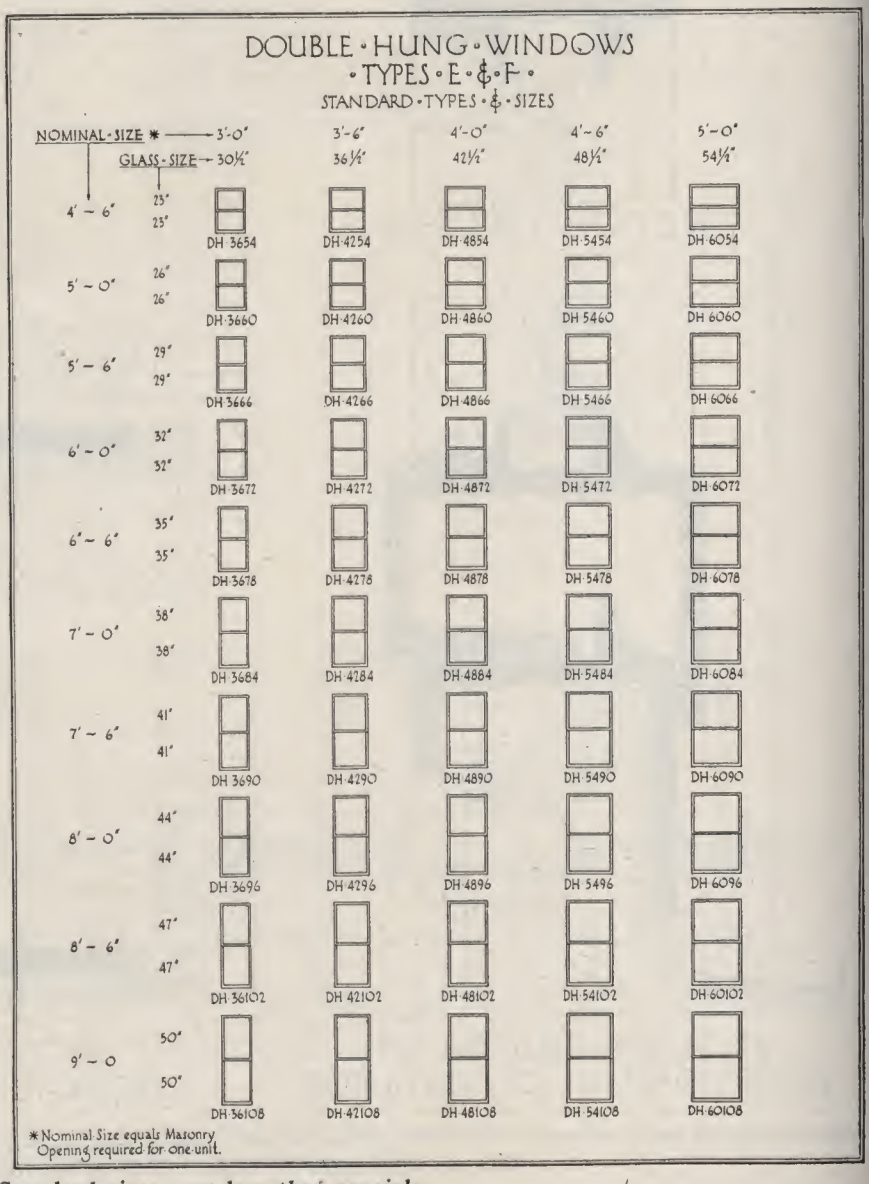
13. Weather Stripping of 22 gauge steel, galvanized, shall be furnished for the jambs.

Note: Additional spring bronze weathering at head, meeting rail and sill, is furnished when specified at slight added cost.

Attached Hardware

14. Each window shall be equipped with four pulleys machined from cold-rolled steel. The pulleys shall have oilless bearings and shall be set in a 12 gauge steel pulley pan. The sash chain shall be American Chain Co. No. 130 Galvanized Sash Chain.

15. The Glazing Strip for the bottom rail of the lower sash shall act as a continuous lift.



Standard sizes cost less than specials

Continued on next page

Unattached Hardware

16. The following hardware shall be shipped unattached and carefully packed to prevent damage until applied for use.

17. Meeting Rail Locks shall have cam action and shall be malleable iron with cold galvanized Lupton No. 70 finish.

18. Pull-Down Handle shall be malleable iron, cold galvanized Lupton No. 70 finish, for attaching to lower rail of top sash.

19. Pull-Down Socket shall be malleable iron, cold galvanized Lupton No. 70 finish, for attaching to upper rail of top sash for pole operation.

Calking

Note: Calking is not done by Lupton, but, when specified, non-staining elastic calking cement is furnished by Lupton at added cost.

Erection

Note: Lupton Double Hung Windows (Types E and F) are shipped assembled with the sash raised and wired to the head. The chain is wired tight inside the jamb box, and the sash weights are shipped unattached.

20. All Lupton Double Hung Windows shall be erected in prepared openings by the window contractor, unless otherwise specified. They shall be set plumb and true, securely fastened in place and properly adjusted before glazing.

Note: Include in the masonry specification that all masonry openings shall be accurately constructed in accordance with the installation details for Lupton Double Hung Windows, and that all mortar, grouting, pointing, etc., shall be done by the mason contractor after windows have been erected.

Painting

21. All windows shall receive one coat of window manufacturer's standard gray galvanized metal primer in the factory.

Note: See page 1.

Glass and Glazing

Note: (See also page 1). Specify glass and glazing under proper heading elsewhere in specifications.

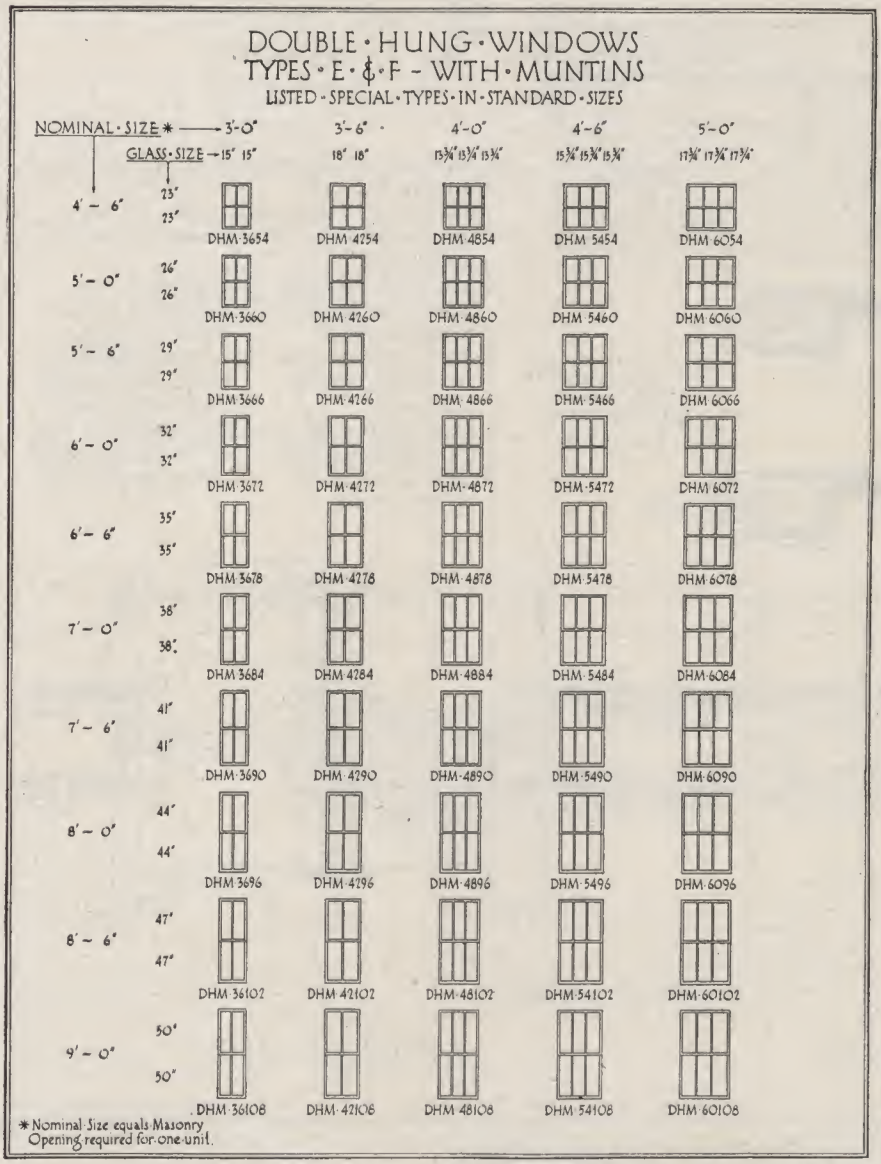
(a) Do not specify single thickness glass.

(b) Specify high-grade steel window putty (ordinary wood sash putty must not be used).

(c) Specify that all Lupton Steel Double Hung Windows shall be glazed from the inside; that all glass shall be set in a bed of putty and held by 14 gauge glazing strips attached with low round-head machine screws.

REQUIREMENTS FOR UNDERWRITERS' LABELS

1. Both Types E and F Windows may be labeled.
2. Maximum size of unit is 6 ft. 0 in. wide and 10 ft. 0 in. high.
3. Multiple unit openings require mullions anchored at head and sill.
4. The maximum exposed glass area for a single light is 720 sq. in., with a maximum horizontal dimension of 48 in. and a maximum vertical dimension of 54 in.
5. Sash locks must be malleable iron.
6. Weather-stripping at head, meeting rail, and sill is optional.



Note

When ordering Underwriters' Labeled Windows it is important that the following information be given:

1. Groupings of units in masonry openings. By this is meant the number and size of units in each masonry opening.

2. Detail of head, sill and jamb conditions.

This information is required by the Underwriters before the windows can be labeled.

GAUGES OF METAL USED IN TYPES E AND F WINDOWS

Frames

	Type E	Type F
Head	20 Gauge	16 Gauge
Head Cover	20 Gauge	18 Gauge
Jamb Box	20 Gauge	14 Gauge
Removable Jamb Piece	20 Gauge	16 Gauge
Sill	16 Gauge	12 Gauge

Material — Hot galvanized dull-coated steel sheets.

Sash

Sash Members up to 4 ft. 0 in. wide	14 Gauge	14 Gauge
Sash Members over 4 ft. 0 in. wide	12 Gauge	12 Gauge
Glazing Strips, except bottom rail	14 Gauge	14 Gauge
Glazing Strip for bottom rail	12 Gauge	12 Gauge

Material—Cold galvanized strip steel.

Parting Strips

	16 Gauge	16 Gauge

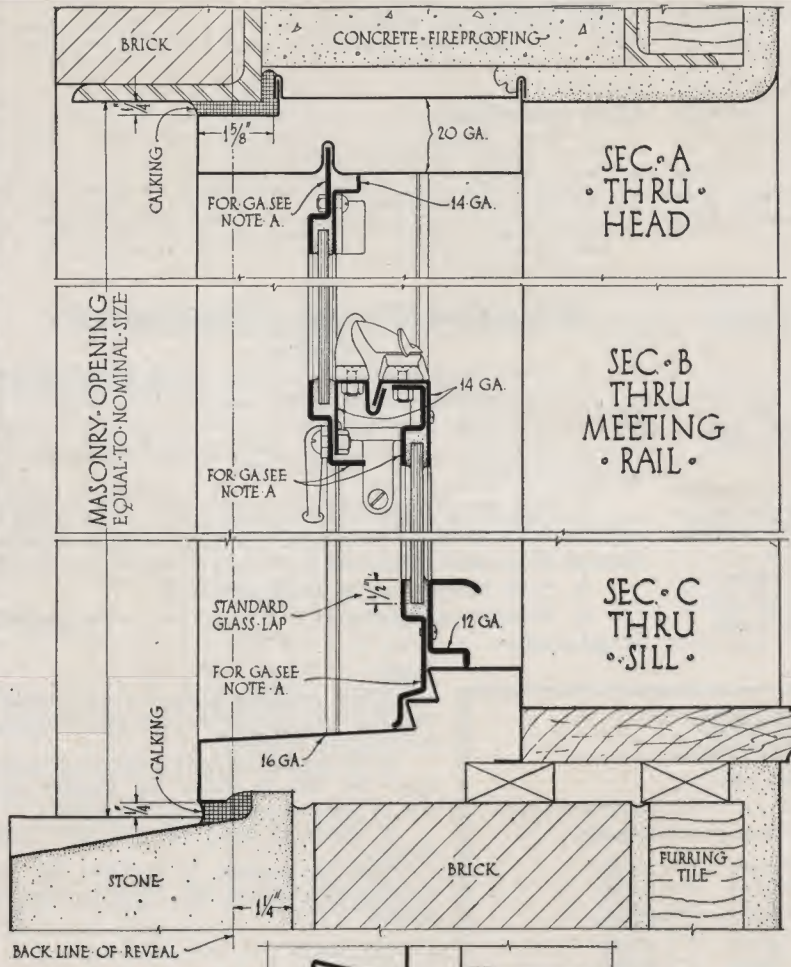
Material—Cold galvanized strip steel.

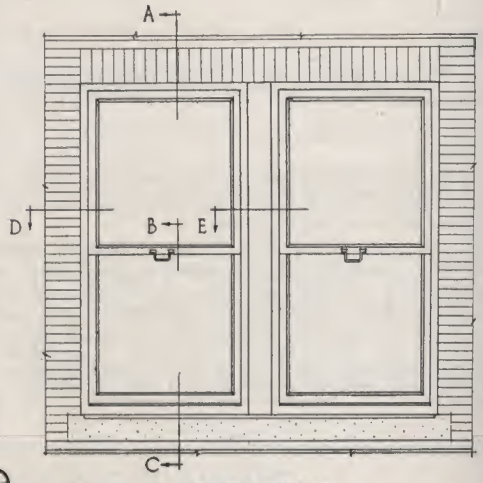
For quick deliveries, use standard sizes

Continued on next page

DOUBLE-HUNG-WINDOWS DETAILS ~ TYPE-E

SCALE-FOR-DETAILS ~ 3"=1'-0"





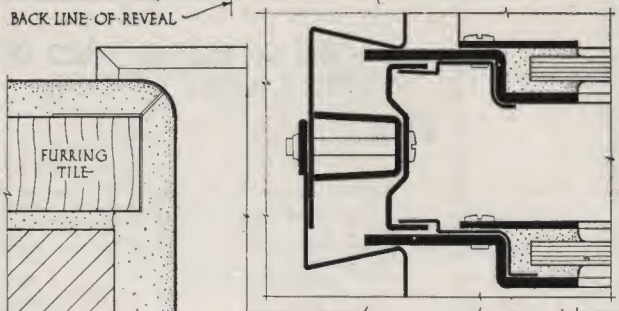
ELEVATION
SCALE-¼"-1'-0"

NOTES

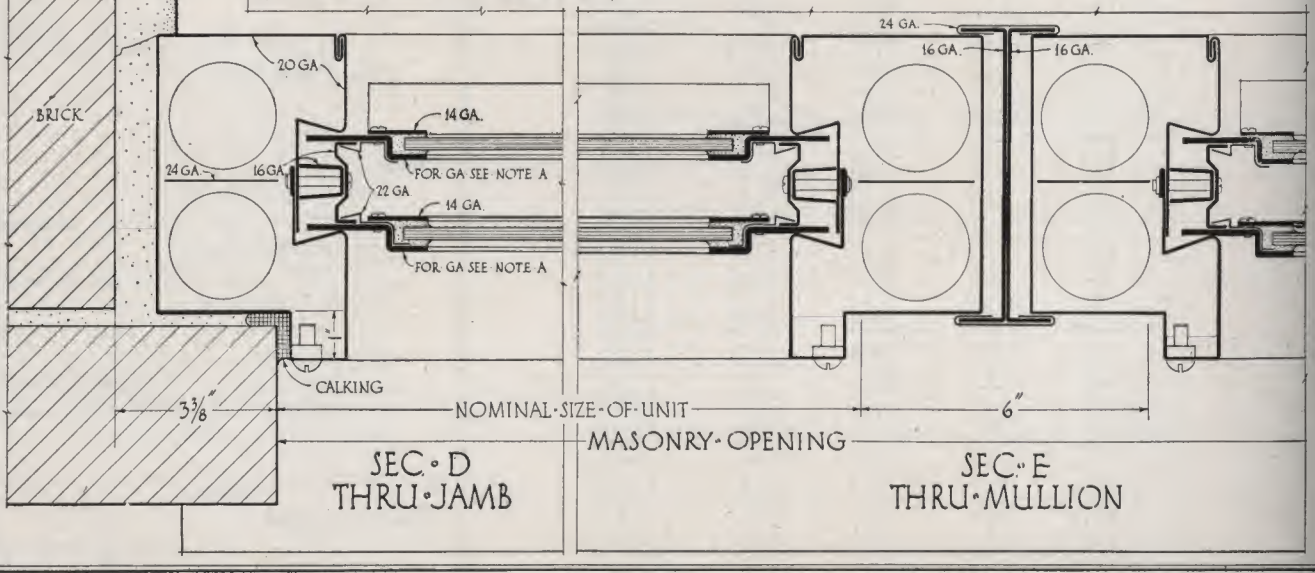
A-Sash-rails-are-14-Ga.-on-windows-up-to-and-including-those-4'-0"-wide.
Sash-rails-are-12-Ga.-on-windows-over-4'-0"-wide.

B-Extras-furnished-on-both-E-&-F-windows-at-an-~ additional-cost.

1-Solid-bronze-hardware-Lupton*34-finish-polished-and-lacquered.
2-Spring-bronze-weathering-at-head,-meeting-rail-and-sill.
3-Solid-bronze-sash-lift.
4-12-Ga.-Stool-Extension.
5-Non-staining,-elastic-calking-cement.
6-Muntins.
7-National*11-window-cleaning-anchors.
8-Columbia-shade-roller-bracket-(nickel-finish).
9-Underwriters-Label~Requirements-for-Labeled-Windows-are-listed-on-Lupton-page-40.

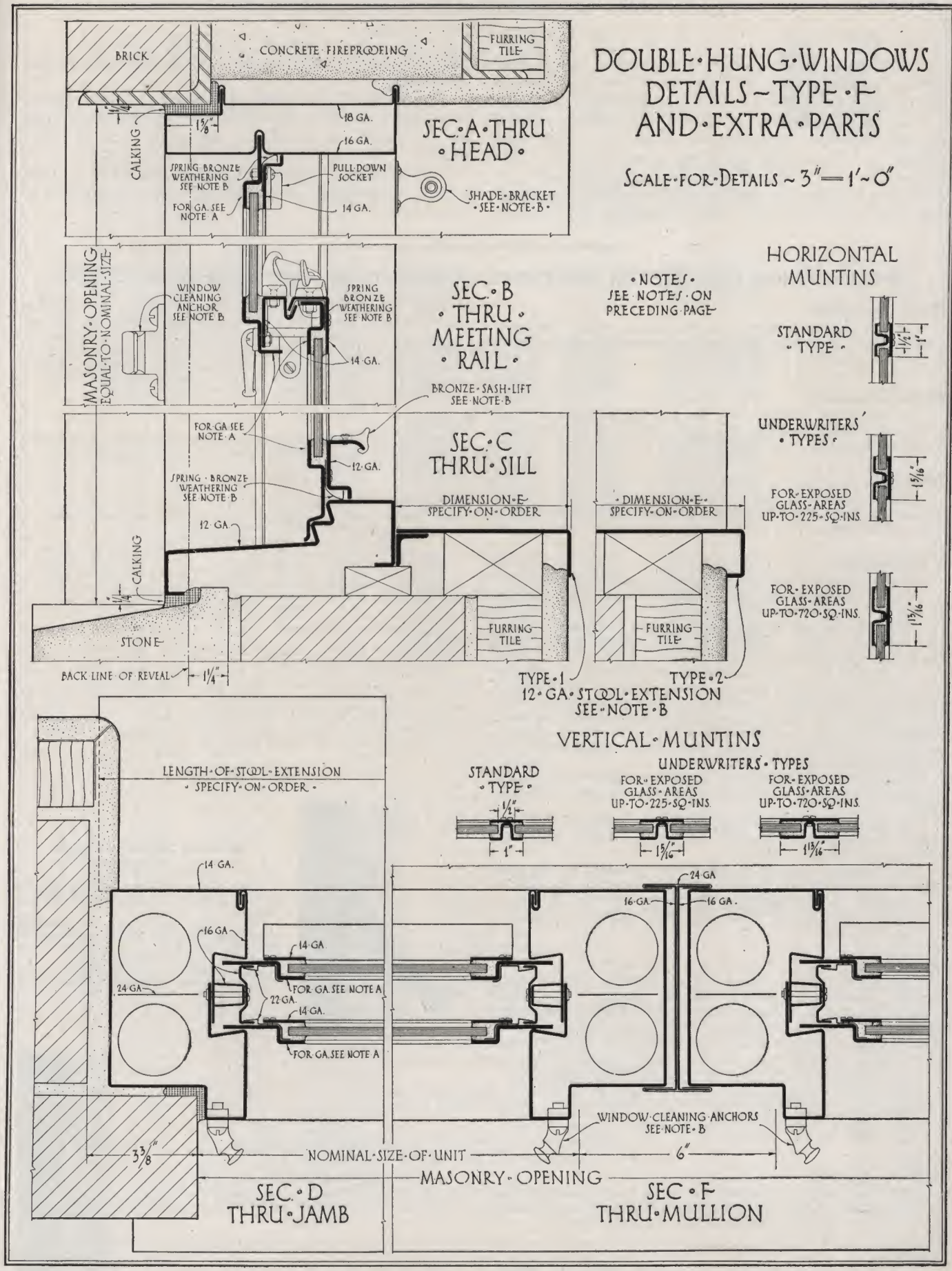


HALF-SIZE-DETAIL-SHOWING-WEATHERING AT-JAMB



For quick deliveries, use standard sizes

Continued on next page



Standard sizes cost less than specials

Continued on next page

LUPTON RESIDENCE CASEMENTS
of Copper-Bearing Steel

For all types of residences, apartment houses and similar buildings, Lupton Residence Casements possess many superior features in design and construction.

In designing these Casements the aesthetic as well as the mechanical requirements of the user were considered. All units having a stationary transom (for protection of draperies) are provided with holes for attaching brackets for shades and draperies. Provision has also been made for neatly screening any type of unit by means of any one of several well known types of screens.

New type Sheraton Handles (available in a variety of finishes) and new type malleable iron friction hinges are furnished as standard equipment on all casements.

Upon special request alternate hardware or non-friction hinges and sill hardware will be furnished at extra cost.

SPECIFICATION FOR LUPTON RESIDENCE CASEMENTS OF COPPER-BEARING STEEL

Work Included

1. Furnish where shown on drawings, Lupton Residence Casements of copper-bearing steel as manufactured by DAVID LUPTON'S SONS CO., Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate for the architect's approval complete shop drawings. These shall show scaled sections of frame members, hardware, anchoring, etc.

Materials

3. Ventilator and frame members, muntins, and mullion and impost bars shall be made of specially rolled, copper-bearing, rust-resisting, steel sections.

Construction

4. All casements shall be designed for outside glazing.

5. All casements shall be straight and true with members in alignment and surfaces in a plane.

6. Ventilator and frame members shall be mitered at corners and butt welded. The frame and ventilator shall form a two-point, flat, continuous, weathering contact.

7. Muntin Bars shall be continuous from top to bottom, and from side to side between frame members or ventilator members. They shall be attached to frame members or ventilator members by tenoned, riveted joints and shall be so interlocked at their intersections as not to decrease their ultimate strength. They shall be flush with frame members or ventilator members on the inside.

8. Mullions and bolts for attachment shall be provided wherever two or more units are placed side by side in an opening.

9. Imposts and bolts for attachment shall be provided wherever two or more units are placed one directly above the other in an opening.

10. Weather bars of 16 gauge hot galvanized steel plate shall be furnished for ventilators that extend to the head.

Note: (a) Continuous anchors should be specified here if wanted. See List of Extras at end of specification.

(b) Sill and jamb anchor clips of steel should be specified here if wanted.

Hardware

11. All hardware, except hinges, shall be shipped unattached; carefully packed to prevent damage. Top-hinged ventilators shall be equipped with close-up friction hinges and shall have solid bronze transom latches supplied for locking. Side-hinged ventilators shall be equipped with extended friction hinges and shall have handles supplied for locking.

Note: If screens are to be furnished as noted on page 49 of this catalogue, the fact should be mentioned in the specification and the option number given so that the proper drilling can be furnished. If non-friction hinges or any departure from the standard hardware as described in paragraph 11 is desired, this fact should be stated. See hardware and list of extras on this page.

Calking Cement

12. The window manufacturer shall furnish non-staining elastic calking cement in quantities sufficient for application as shown on window manufacturer's standard details.

Erection

13. All casements shall be erected by (state by whom). They shall be set plumb and true, properly aligned and securely anchored before glazing. Mullions and imposts (and continuous anchors if specified) shall be bolted securely to frames. A 16-gauge weather bar shall be placed over ventilators extending to the head. Calking cement shall be neatly applied at points indicated on window manufacturer's standard details.

Note: Unless hardware is to be painted it should not be attached until after painting and plastering are finished.

Painting

14. All casements shall receive one shop coat of casement manufacturer's standard dark gray paint, oven dried.

Note: See page 1.

Glass and Glazing

Note: (See also page 1). Specify glass and glazing under proper heading elsewhere in specifications.

(a) Do not specify single thickness glass.

(b) Specify high grade steel window putty (ordinary wood sash putty must not be used).

(c) Specify that Lupton Residence Casement Windows shall be glazed from the outside. The glass set in a bed of putty and held by Lupton Standard Wire Glazing Clips.

LIST OF EXTRAS

The following are alternates and extras furnished when specified at added cost.

1. Weather bars of 16 gauge hot galvanized steel plate used over ventilators extending to the head.
2. Continuous anchors of 16 gauge galvanized steel with corner fillers of 18 gauge galvanized steel for use at head and jamb.
3. Under screen operator and non-friction hinges. (This is not the same as screen option No. 3 on page 49.)
4. Solid bronze handles of the Alden Park type.
5. Handles and transom latches in alternate finishes (see below).
6. Drilling for screen option other than Option No. 1.

HARDWARE

Standard Sheraton Handle

No. 352 shown
Opposite hand No. 351

This handle with gray painted finish is the one furnished unless an alternate is specified.

This type handle will be furnished when specified in one of the following finishes, at extra cost:

Old Coin Bronze	Polished Brass
Polished Bronze	Nickel Plate
Statuary Bronze	Imitation Bower Barn

At right: ⟹

Alden Park Handle

No. 271 shown
Opposite hand No. 270

This solid bronze handle is an alternate furnished only when specified

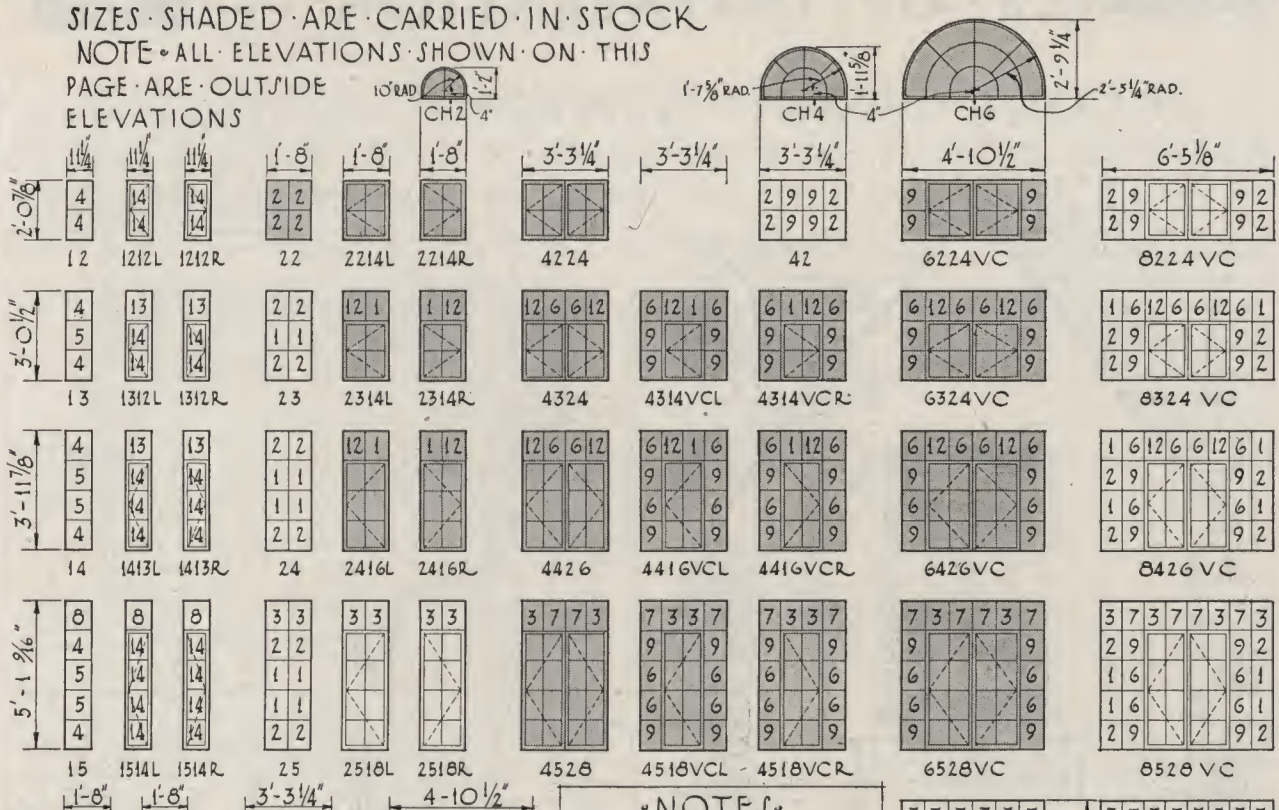
Continued on next page

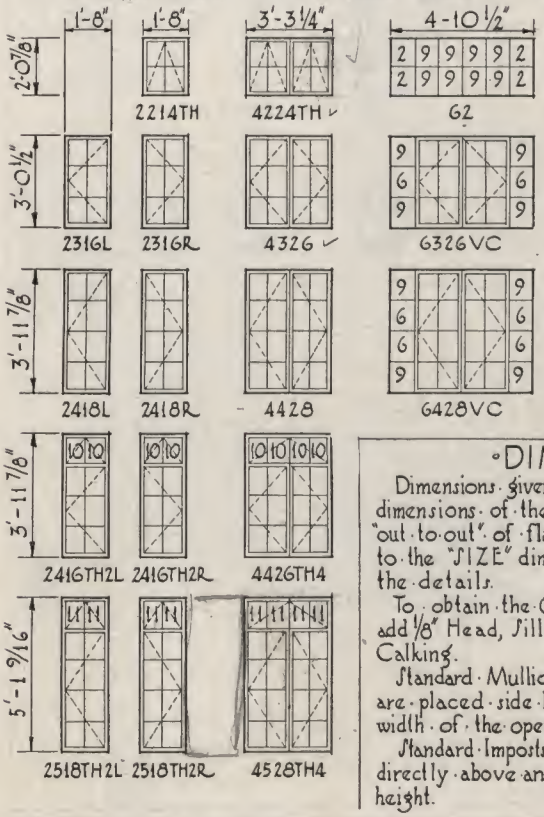
LUPTON · CASEMENTS

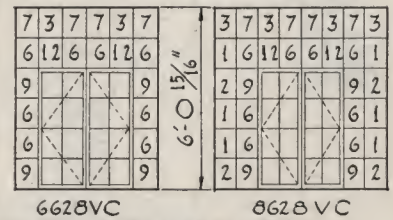
STANDARD · TYPES · AND · SIZES

SIZES · SHADED · ARE · CARRIED · IN · STOCK

NOTE · ALL · ELEVATIONS · SHOWN · ON · THIS PAGE · ARE · OUTSIDE ELEVATIONS







· NOTES ·

1. All units are viewed from outside.
2. A right hand window swinging from left to right is indicated by dotted lines converging toward the right
3. A left hand window swinging from right to left is indicated by dotted lines converging toward the left.
4. A transom opening out at the bottom is indicated by dotted lines converging toward the top.

· DIMENSIONS ·

Dimensions given are in each case the overall dimensions of the unit. They are measured "out to out" of flange and correspond to the "SIZE" dimension shown in the details.

SIZE

To obtain the Opening Dimension add ⅛" Head, Sill, and Jambs for Calking.

Standard Mullions (used when two or more units are placed side by side in an opening) add ¼" to the width of the opening.

Standard Imposts (used when units are placed one directly above another) add ¼" to the opening height.

GLASS · SIZES

All lights of glass are 8½" x 11" except those marked otherwise.

Lights marked	1	are	9" x 11"
" "	2	"	9" x 11½"
" "	3	"	9" x 13"
" "	4	"	9½" x 11½"
" "	5	"	9½" x 11"
" "	6	"	9¼" x 11"
" "	7	"	9¼" x 13"
" "	8	"	9½" x 13"
" "	9	"	9¼" x 11½"
" "	10	"	8½" x 9¼"
" "	11	"	8½" x 11½"
" "	12	"	9" x 10¾"
" "	13	"	9½" x 10¾"
" "	14	"	8¼" x 11"

Standard sizes reduce costs of windows, lintels, sills, shades, awnings and screens

Continued on next page

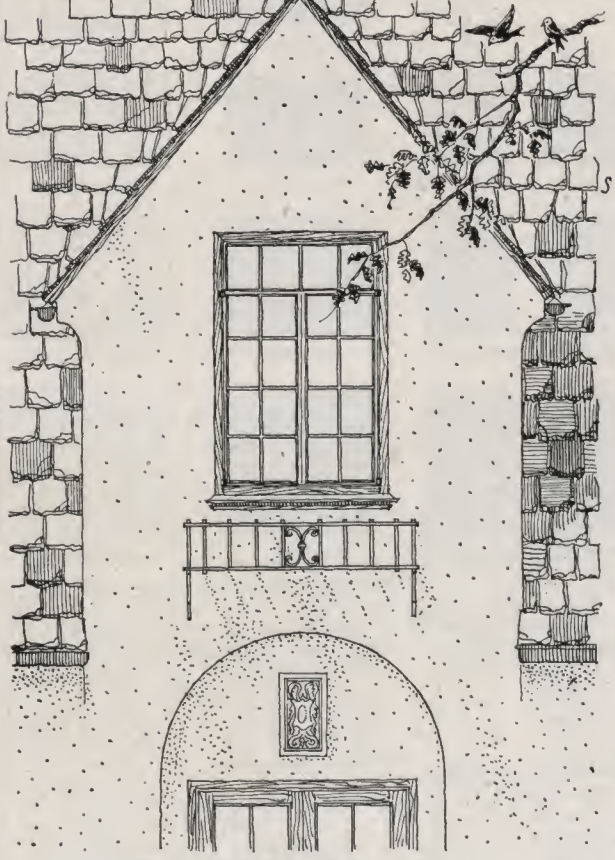
LUPTON · CASEMENTS

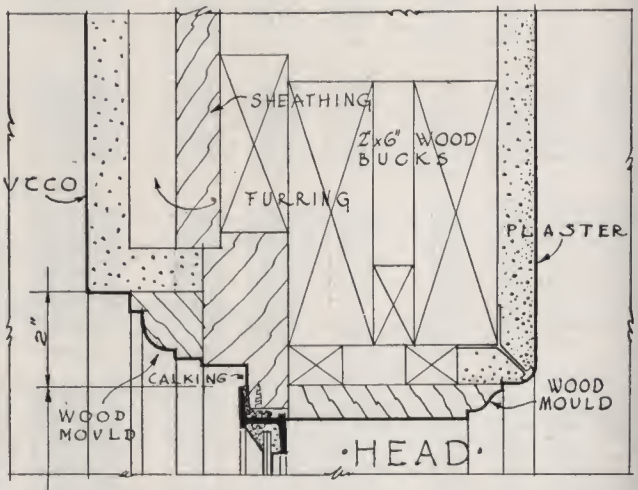
DETAILS · OF · INSTALLATION

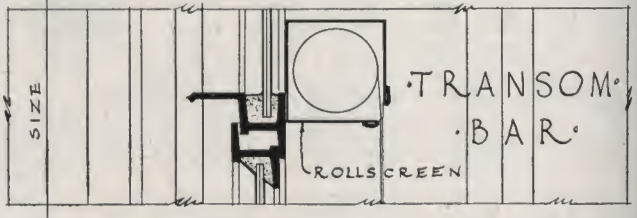
· SECOND · STORY · WINDOW · SCALE FOR DETAILS · 3" = 1'-0"

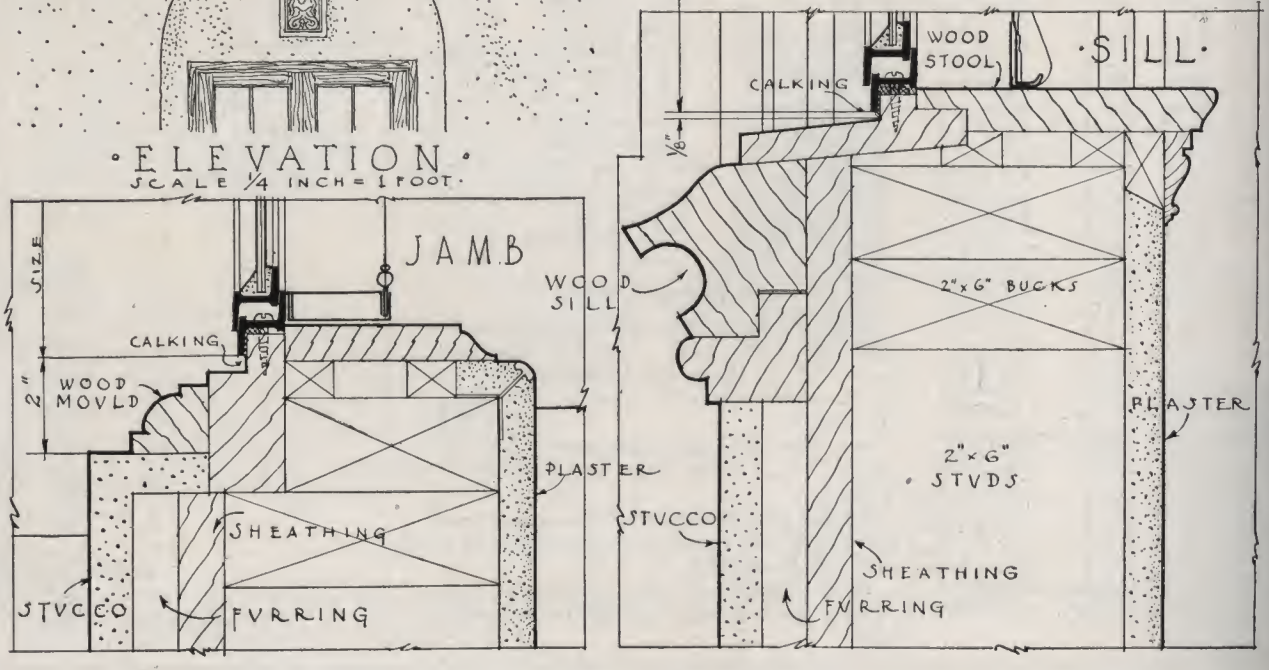
RESIDENCE · OF · MR · R · W · McKINNON · EVANSTON · ILLINOIS

· ERNEST · MAYO & MAYO · ARCHITECTS ·









Note: Details modified to show application of screens

Continued on next page

LUPTON · CASEMENTS

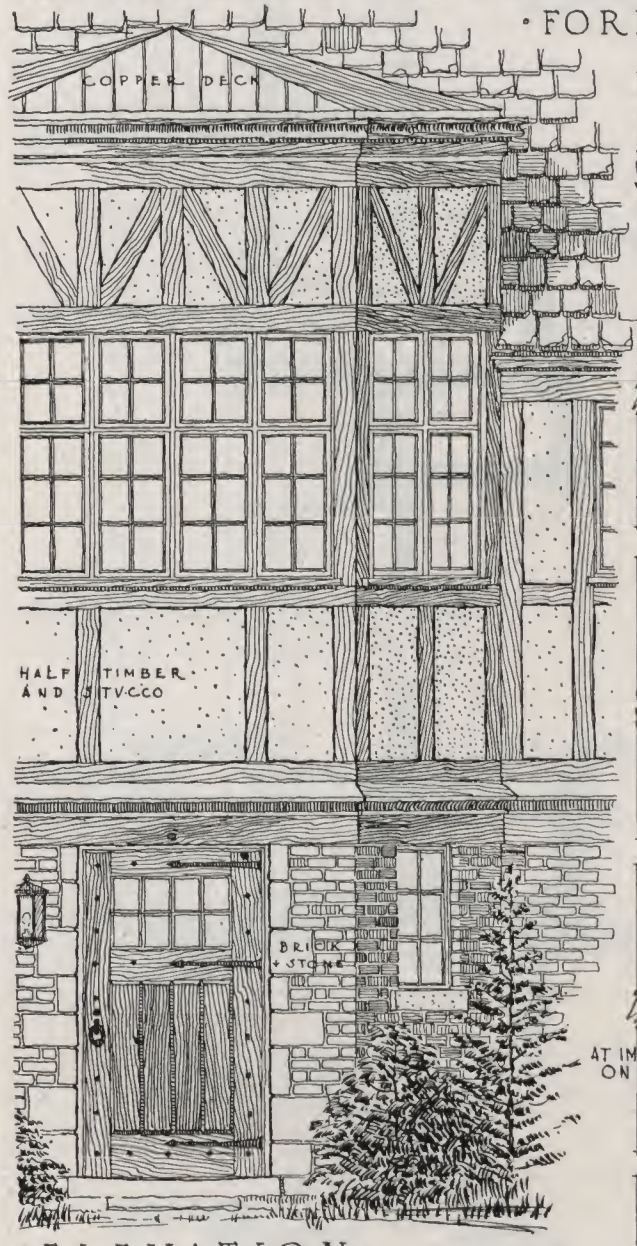
DETAILS · OF · INSTALLATION

· BAY · WINDOW · IN · STAIR · HALL ·

SCALE FOR DETAILS - 3" = 1'-0"

RESIDENCE · OF · MR · GEORGE · C · WARREN · JR · SUMMIT · N.J.

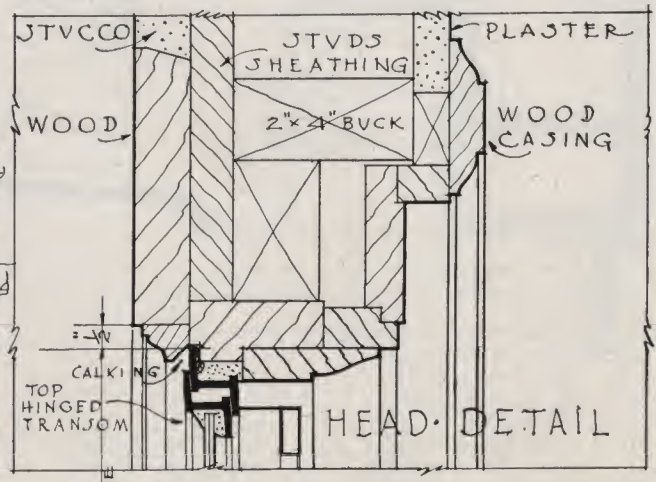
· FORMAN & LIGHT · ARCHITECTS ·

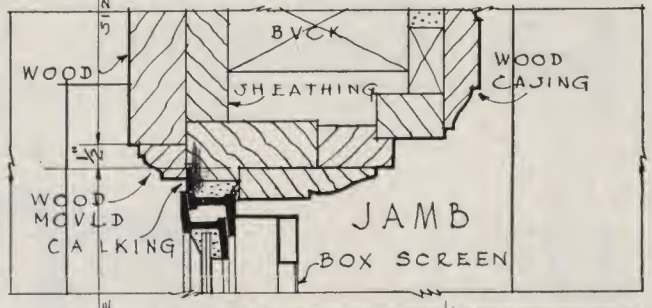


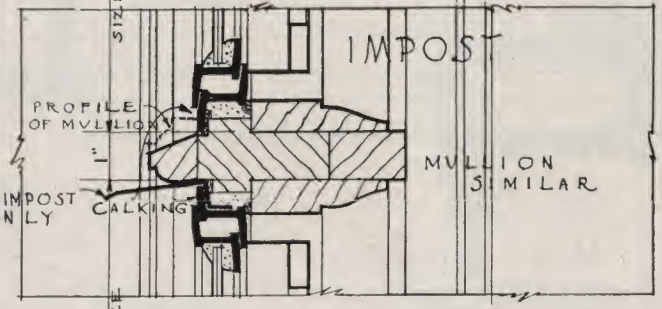
· ELEVATION ·

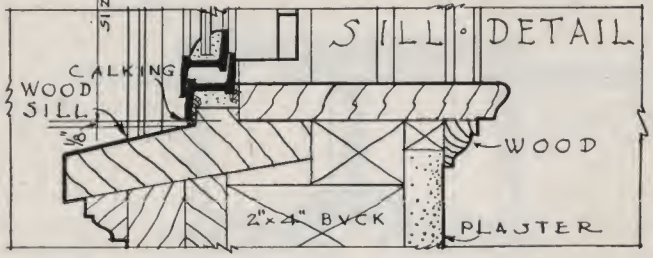
SCALE 1/4 INCH = 1 FOOT ·

NOTE:
DETAILS MAY BE MODIFIED TO ACCOMODATE ROLLING TYPE SCREENS







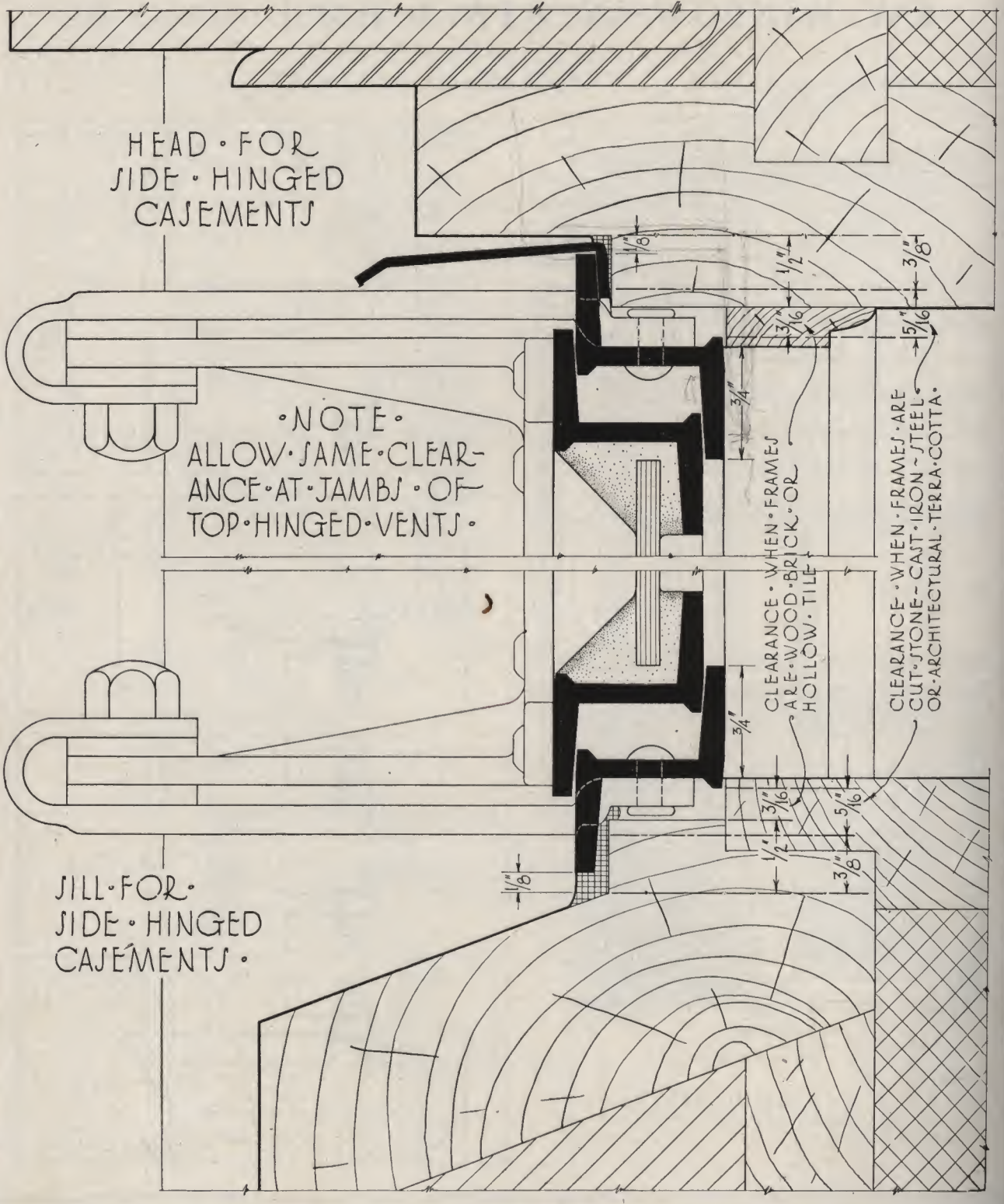


Note: Details modified to show application of screens

Continued on next page

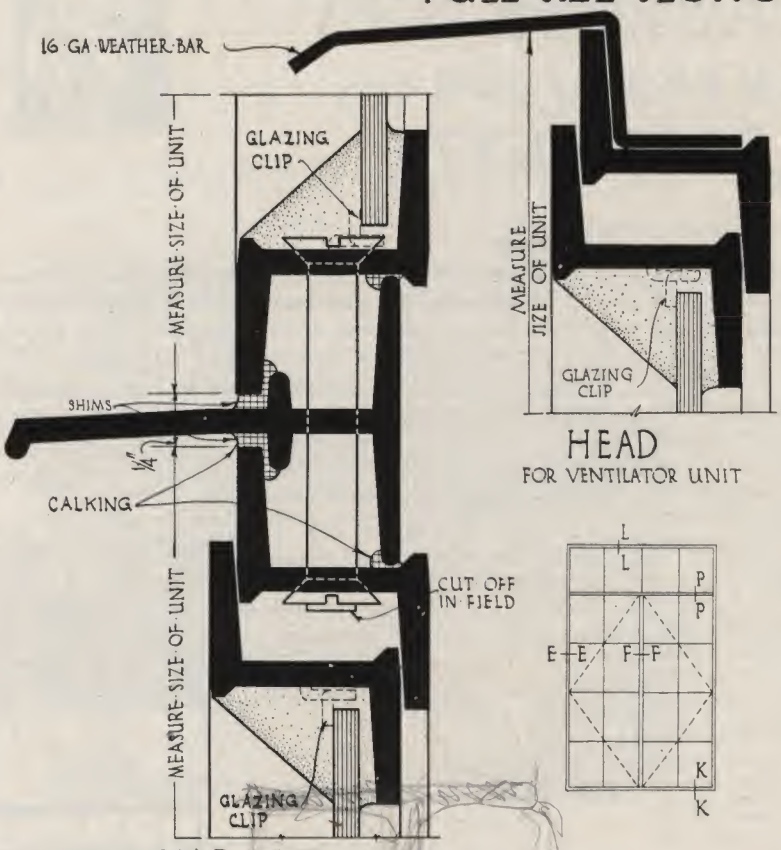
LUPTON · CASEMENTS

DETAIL · OF · RABBETT · SHOWING CORRECT · DEPTH · TO · CLEAR · HINGE



Continued on next page

RESIDENCE · CASEMENTS · FULL · SIZE · SECTIONS ·

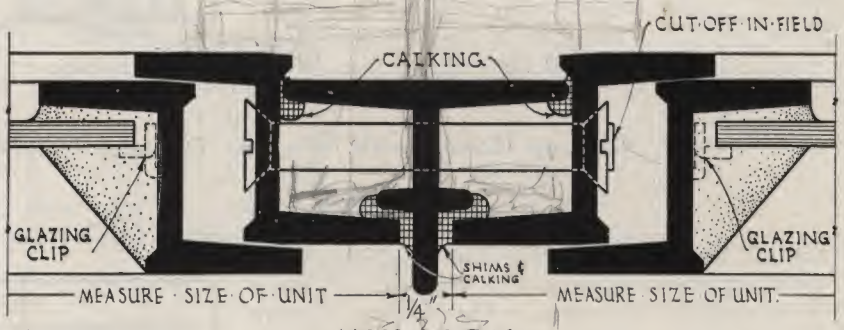


IMPOST

FIXED · UNIT · SHOWN · OVER · VENTILATOR · UNIT
SIMILAR · CONSTRUCTION · USED · BETWEEN · TWO
FIXED · UNITS · OR · TWO · VENTILATOR · UNITS.

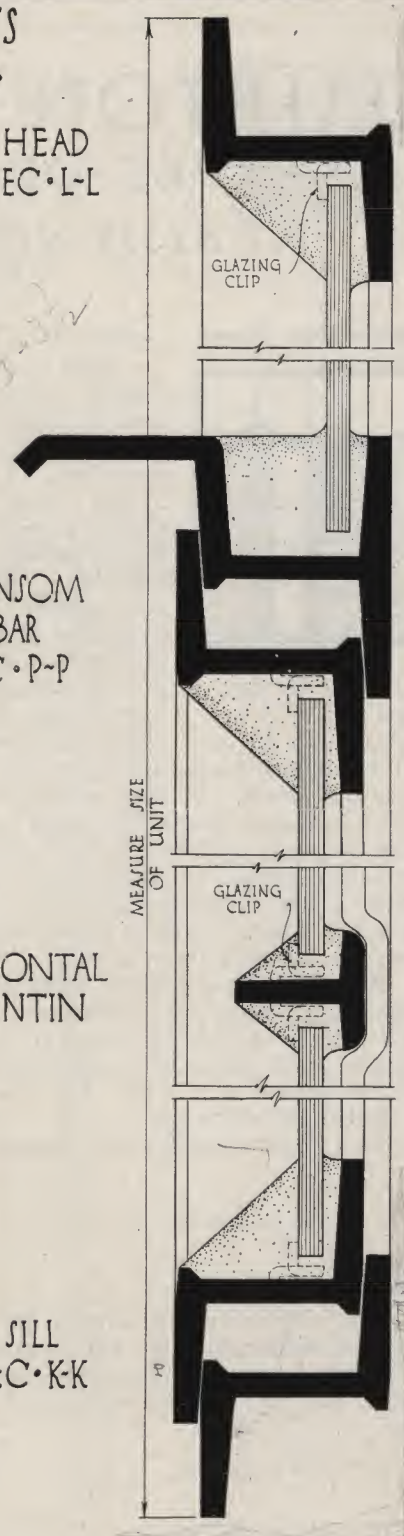
HEAD

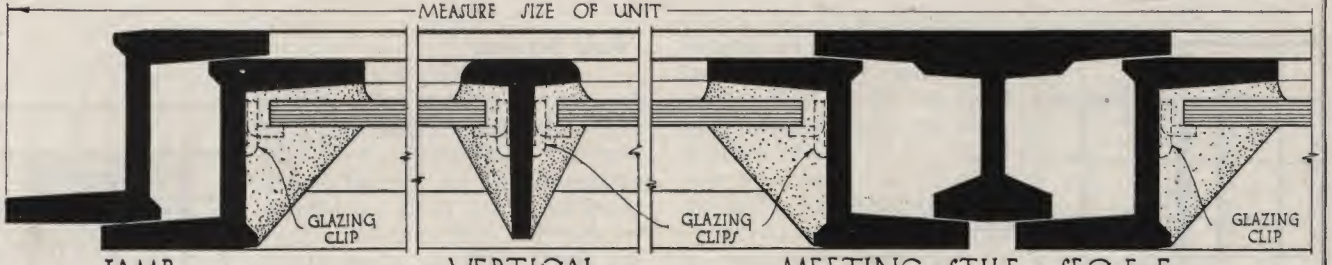
FOR VENTILATOR UNIT



· MULLION ·

TWO · VENTILATOR · UNITS · SHOWN · SIDE · BY · SIDE
SIMILAR · MULLION · USED · BETWEEN · TWO · FIXED · UNITS,
OR · BETWEEN · A · FIXED · UNIT · AND · A VENTILATOR · UNIT.





Continued on next page

LUPTON · CASEMENTS
· TYPES · OF · SCREENS · FOR · · RESIDENCE · CASEMENTS ·

Lupton Box Screen (Option No. 1)

This is the box screen that Lupton planned for use with their Residence Casements. All Residence Casements (made after Sept. 15, 1929) have holes in the frame for attaching this type of screen. Through its use all the beautiful and practical features of Lupton Casements are retained, including the beautiful new Sheraton Handle and practical friction hinge.

Made in sizes to protect openings 1 and 2 lights wide and 2, 3 and 4 lights high, they may be used separately or in pairs. Two neat brackets which attach to the window frame allow free movement of screen on spring pivots. Screens for 2-light wide casements are side pivoted, single-light wide casements and top-hung transoms are screened by means of a top-hung box screen similar in construction to the side-pivoted screens. A small but positive-acting gravity catch holds the screen tightly closed. The spring pivots allow the screen to be instantly removed.

Screen frame is made of formed steel, or, at a proportionately higher price, aluminum. For steel screens the frame is of one-piece tubular section rolled from 23-gauge steel, galvanized, painted gray, and wired with 16-mesh bronze wire cloth. The wire may be replaced if accidentally damaged.

Box screens applied to casements are shown on page 51.

Aluminum Screens

The aluminum box screens are of natural finish extruded aluminum alloy with corners solidly welded and finished smooth. Wire is 16-mesh rustless copper-bronze wire and may be replaced if accidentally damaged.

Lupton Storm Windows

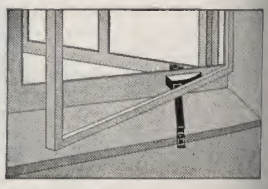
In localities where winters are severe, Lupton Storm Windows may be substituted for box screens, as the same brackets hold both storm windows and screens. The frame of the storm window is of formed steel with special provision for glass insertion. These windows are practical and low in cost.

Alternates

To meet special requirements Lupton Casements may be screened by any one of the methods described below. The additional drilling required for attaching these screens will be done at the warehouse of our dealer or distributor (at slight added cost), but your choice must be stated at time of purchase.

Under-screen Levers (Option No. 2-A)

Same as Option No. 1, except that screen is so placed on casement frame to allow for a Lupton lever-type under-screen operator, here illustrated. Casement is opened and closed with the screen in place.



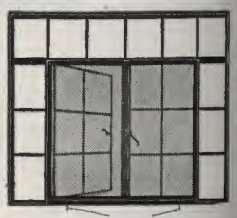
Box Screen, 4 Lights Wide (Option No. 2-B)

Same as Option No. 2-A, except screens are made four lights wide. One four-light wide screen may be substituted for 2 two-light wide screens as in Option No. 2-A, at any time. The same brackets act for hinging and fastening.

Levers

Close-up Screen with Win-Dor Operator (Option No. 3)

A Win-Dor Operator (screw-gear type with sill cover) operated by crank under a screen, which requires the use of thin, flat hardware, instead of Lupton Sheraton Handles. The friction feature must also be eliminated from the Lupton hinge. Used in localities where frequent storms require a similarly frequent opening and closing of windows.



Cranks

Roll Screens

A Roll Screen which operates screen wire in much the same way as a roller shade. Made in standard sizes to fit Lupton Casements. No field measurements or special fitting required, when used (as shown on page 45) with casements having fixed light of glass above ventilators.

Continued on next page

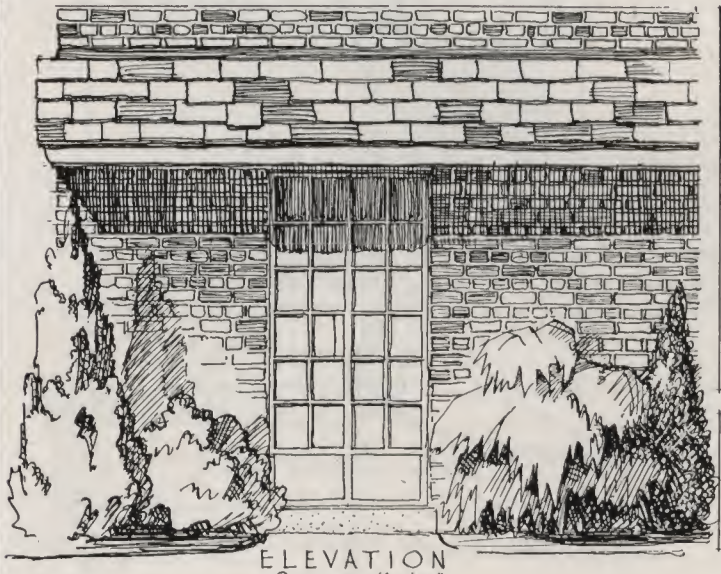
LUPTON · CASEMENTS

DETAILS · OF · INSTALLATION

STANDARD CASEMENT DOORS

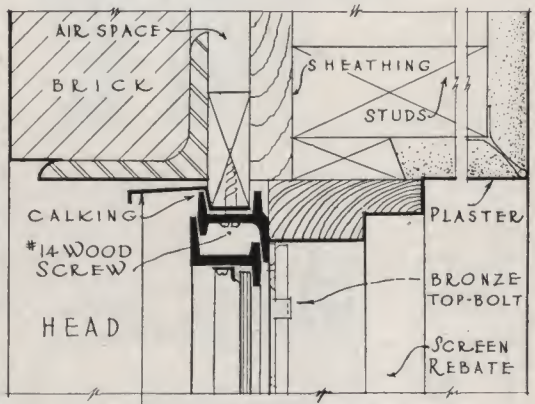
INSTALLATION IN BRICK VENEERED WALLS

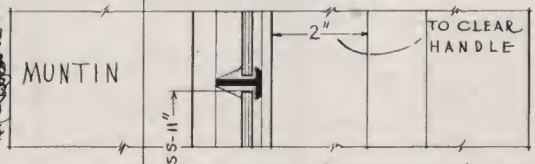
SCALE for DETAILS 3" = 1'-0"

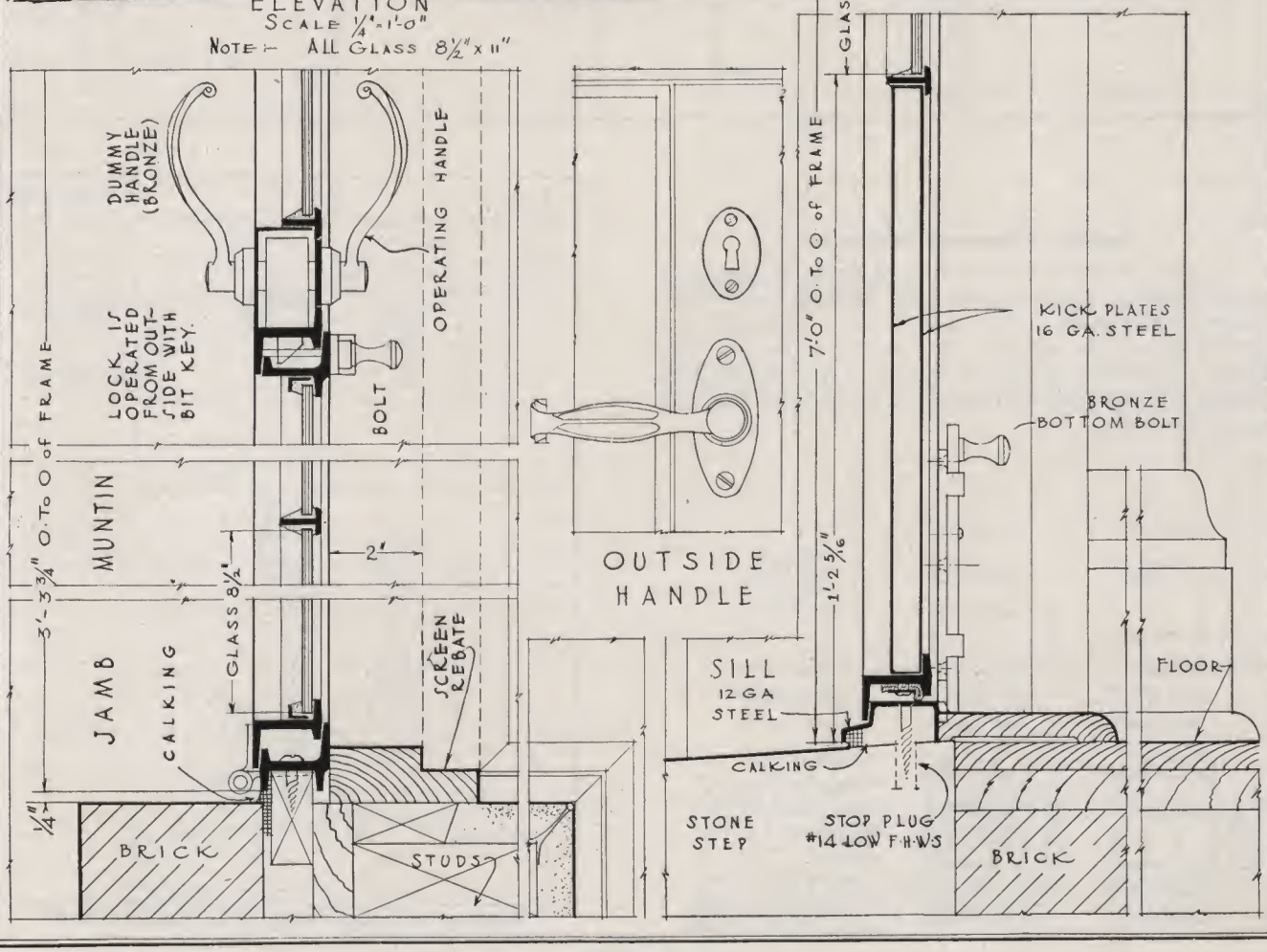


ELEVATION
SCALE 1/4" = 1'-0"

NOTE — ALL GLASS 8½" x 11"





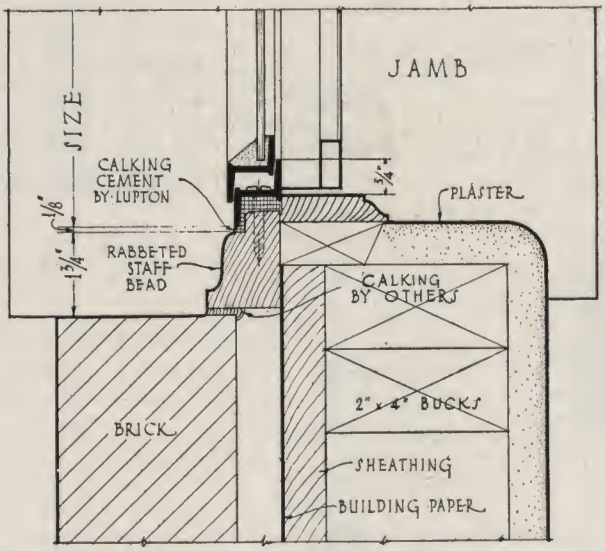


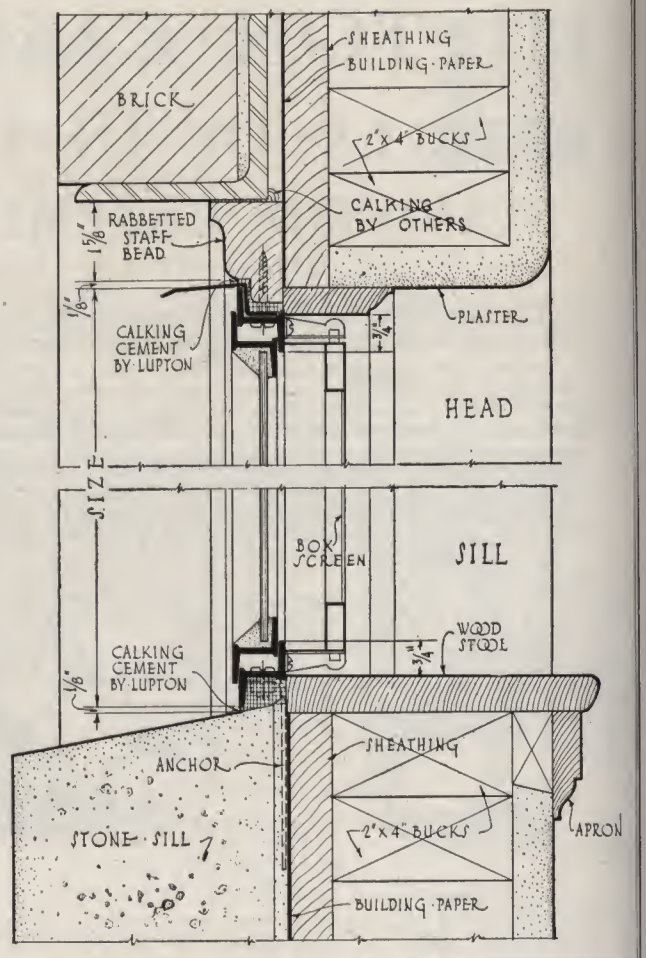
Continued on next page

RESIDENCE · CASEMENTS

DETAILS · OF · INSTALLATION · SHOWING — AN · EFFECTIVE · AND · INEXPENSIVE · METHOD OF · INSTALLATION · USING · A · WOOD · MOULD DESIGNED FOR · STEEL · CASEMENTS

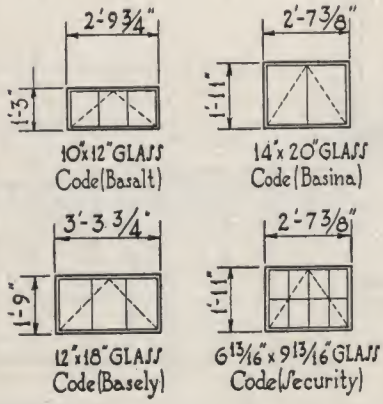
SCALE FOR DETAILS · 3"=1'-0"



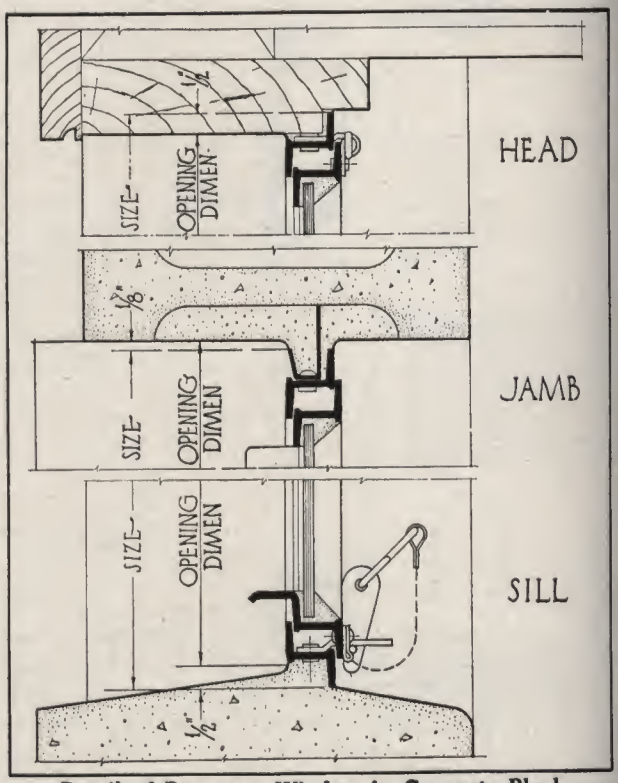


Lupton Basement Windows

Lupton Basement windows are made of the same copper-bearing, rust-resisting steel sections as Lupton Residence Casements. The members are mitered at the corners and solidly welded. The bottom rail of the ventilator is specially shaped to form a weathertight drip. Ventilators are easily removed by taking out the split pin in the hinge.



• NOTE •
• Dimensions given correspond to SIZE dimensions shown in details. Opening dimensions are ¼" greater in width and 1" smaller in height.



Detail of Basement Window in Concrete Block
Scale 3 in. = 1 ft. 0 in.

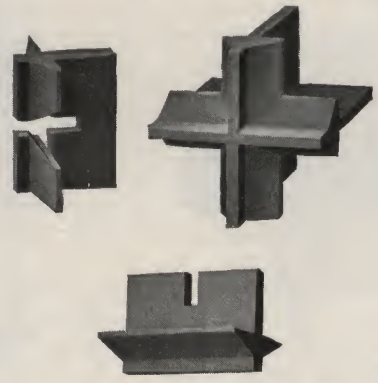
Continued on next page

LUPTON STEEL PIVOTED WINDOWS

For Sidewalls of Industrial Buildings

Usually less expensive than corresponding areas of masonry wall, Lupton Pivoted Windows offer a satisfactory method of natural ventilating and daylighting of industrial buildings.

Types, sizes and designs presented in the following pages represent the standard practices of the steel window industry relative to this product. The sizes and ventilator arrangements listed are those which have been found to fill all of the ordinary requirements of building construction. Departures from standard practice should be avoided as they increase the cost and delay shipment.



Muntin Joint

Hinge

Two Points of Superiority of Lupton Pivoted Windows:

1. The design of the Lupton interlocking muntin joint combines most effective placing of metal with the least possible deformation. The greater the external pressure, the tighter is the lock of the intersecting members. This joint gives less opportunity for moisture to enter and cause corrosion.

2. The Lupton Hinge is integral with the weathering members, and is reinforced with steel plates riveted to the weathering members. There are no spacers, hence the hinge pins cannot sag.

SPECIFICATION FOR LUPTON STEEL PIVOTED WINDOWS

Work Included

1. Furnish where shown on drawings Lupton Steel Pivoted Windows, manufactured by DAVID LUPTON'S SONS CO., Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate for the architect's approval complete shop and installation drawings. These shall show scaled sections of windows and frame members, details of construction, hardware, anchoring, etc.

Materials

3. Sections shall be specially designed, hot-rolled, solid steel.

4. Frame members shall be angle sections.

5. Muntins shall be special cruciform section 1⅜ in. deep.

6. Vertical Mullions shall be hot-rolled, solid T-Bar section.

Note: Structural Steel Members forming Imposts are not furnished by the window manufacturer.

Construction

7. All Steel Pivoted Windows shall be designed for inside glazing.

8. Both Frames and Ventilators shall be assembled by tenoned, riveted joints at the corners. Continuous, two-point, flat contact weathering shall be provided between Ventilators and Frames.

9. Muntin Bars shall be continuous from top to bottom, and from side to side, between frame members or ventilator members. They shall be attached to frame members or ventilator members by tenoned, riveted joints and shall be so interlocked as not to decrease their ultimate strength at the intersection.

10. Vertical Mullions shall be provided with bolts for frame attachment where two or more windows are placed side by side in the same opening.

11. Steel Clips shall be furnished to attach window to steel structure in types and lengths to cover all possible conditions.

12. Sill Anchor Clips shall be furnished. At least one clip shall be used for each two lights in the width of a unit.

13. All Ventilators shall be horizontally pivoted. Ventilator pivot shall be integral with weathering to insure permanent alignment. The pivot shall be located 2 in. above center. Ventilators shall be held in place at the pivots with ⅛-in. flat-head iron rivets and shall operate freely and easily.

Note: Pivot may be located at a different point if so specified. The window then becomes "special."

14. **Universal Clips**—An angle clip 1⅛x1 in., 2 in. long, shall be riveted to the ventilator frame.

Note: The Universal Clip allows any type of Lupton Pivoted Window hardware to be attached to the ventilator before or after glazing.

Hardware

15. All hardware (listed below) shall be shipped unattached, carefully packed to prevent damage until applied for use.

16. Provide steel clip to hold either stay bar or spring catch chain.

17. Provide steel stay bar where Ventilators are within reach from floor.

18. Provide steel spring catch, chain and chain roller guide where Ventilators are beyond reach from floor.

Mechanical Operators

Note: Mechanical operators are covered in a separate specification.

Erection

19. All Steel Pivoted Windows shall be erected by (state by whom), in prepared openings, unless otherwise specified.

Note: Include in the masonry specification that all masonry openings shall be accurately constructed in accordance with the installation details for Lupton Steel Pivoted Windows. All grouting, pointing, etc., should be done by the mason contractor after the windows are set.

20. Windows shall be set plumb and true, properly aligned and securely anchored before glazing. All Ventilators shall be properly adjusted before glazing.

21. All hardware shall be applied under window manufacturer's directions.

Painting

22. All windows shall receive one shop coat of window manufacturer's standard, dark gray paint, oven-dried.

Note: See page 1.

Glass and Glazing

23. Furnish standard wire glazing clips, four to each light.

Note: (See also page 1). Specify glass and glazing under proper heading elsewhere in specifications.

(a) Do not specify single thickness glass.

(b) Specify high grade steel window putty (ordinary wood sash putty must not be used).

(c) Specify that Lupton Steel Pivoted Windows shall be glazed from the inside, the glass set in a bed of putty, and held by Lupton Standard Wire Glazing Clips.

Use standard sizes for quicker deliveries—lower costs

Continued on next page

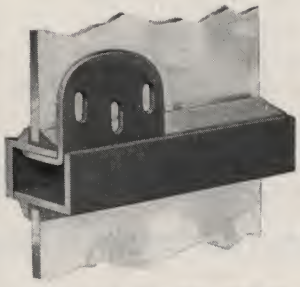
HARDWARE FOR LUPTON PIVOTED WINDOWS

View Showing Two Ventilators in a Unit, One Above the Other

The lower ventilator is operated by Lupton Stay Bar, the upper by Spring Catch and Chain.

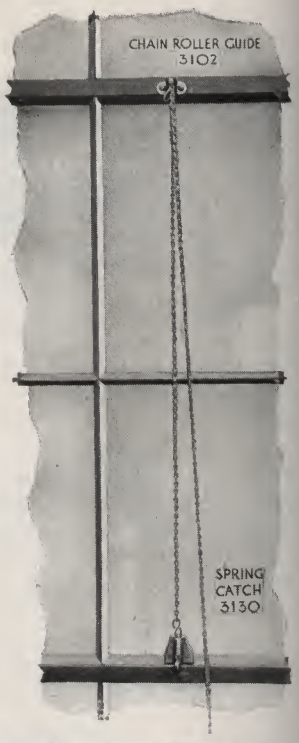
Clip No. 3018

Holds either Stay Bar or Chain



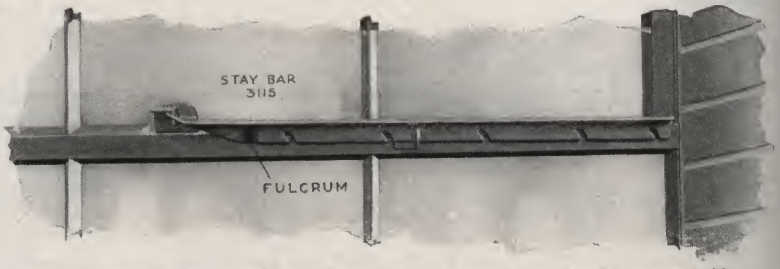
Universal Clip No. 3105

All Lupton Pivoted Windows are now equipped with the Universal Clip riveted to the ventilator. This clip permits the attaching of hardware after the windows are glazed.



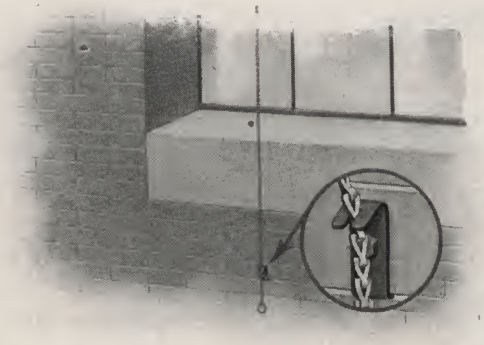
A Ventilator Operated by Lupton Spring Catch and Chain

View shows Chain Roller Guide attached to top member of ventilator and Spring Catch to bottom member. Spring Catch is mounted on the Universal Clip.



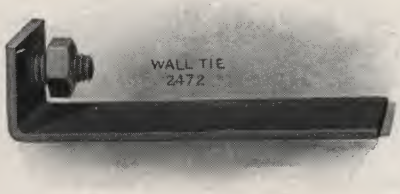
Lupton Stay Bar in Close Position Mounted on the Universal Clip

Near its attached end the Stay Bar is pressed out to form a fulcrum. The fulcrum causes the ventilator to be drawn up tightly against the frame and locked when the Stay Bar is inserted in the clip provided to hold it. Five notches are provided for holding the ventilator at various degrees of opening.



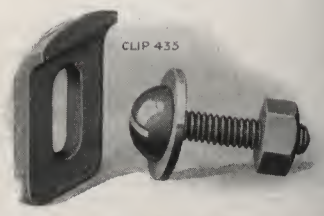
Wall Clip No. 2365

Used as alternate to Stay and Chain Holder No. 3018.



Standard Lupton Wall Tie

For anchoring windows at sill, in brick or concrete construction, No. 1739 (shown at left) is bent in shop and attached in field. No. 2472, a similar anchor, is shipped fastened flat against the frame of the window, and must be bent in field.



Standard Lupton Clip No. 435

For attaching Section 308 to steel framing or to walls with anchor bolts.

Continued on next page

Screens

Lupton is now in a position to furnish Screened Pivoted Windows.

Screens can be attached to all our standard units without altering the sizes. Each opening is covered by an exterior screen on the upper portion and an interior screen on the lower portion and so weathered as to make screens insect tight with ventilator in any position. Screens have metal frames and are covered with bronze wire. They are applied or removed from the interior. All screen ventilators are equipped with friction pivots which allow them to remain opened in any desired position.

Ventilators when within reach of the floor are operated by a cam latch attached to the upper rail of vent. When ventilators are above reach, a special operated spring catch is used.

Hardware

Where Sill Height Is Not Specified—We supply Lupton Stay Bars with all single ventilators. A stay-bar is furnished with the lower ventilator of a unit having two ventilators. A Spring Catch and 12 ft. of Chain are furnished for the upper ventilator.

Where Sill Height Is Specified—We furnish Spring Catch and Chain operation only for ventilators whose bottom edges are more than 6 ft. above the floor. In this case a special clip No. 2365 is furnished to fasten the chain to the wall below the window.

Hardware Alternates—If alternate hardware (or any departure from the method of attachment listed above) is desired the fact must be noted on order.

Friction Pivots—These hold ventilators open without the air of stay bars or friction adjusters. Any pivoted ventilator can be equipped with friction pivots (at added cost) when specified.

Window Cleaners' Anchors—Where window cleaners' anchors are ordered, Whitner Safety Anchors will be furnished, unless others are specified.

Ordering Standard Pivoted Windows

Standard and stock types and sizes are shown on page 55; details are shown on pages 57 and 58.

All windows departing in any particular from the sizes, types, details and specifications given here are special, require more time for delivery and cost more.

Underwriters' labeled windows in standard types and sizes are not special. See page 60 for Underwriters' requirements.

Orders for Dealer Stock Windows (shown shaded in diagram on page 55) can be filled immediately if we are given *complete* information.

Information required with order:

1. *Shipping date* desired (on non-stock sizes time must be allowed for assembling).

2. *Glass sizes.* (All Standard Windows including Dealer Stock are 12x18 in. and 14x20 in. glass sizes only.)

3. *Sizes of windows,* in number of lights wide and high. Always specify width (in number of lights) first. Use symbols given on page 55.

4. *Number of ventilators in each window,* also their size and location. Use symbols given on page 55.

5. *Number of window units in each opening.* This tells us how many mullions are required. See pages 55 and 56 for quick method of listing.

6. *Size of openings,* as a check on glass and window sizes. See table, page 57.

7. *Height of sill from floor.* This gives us the proper length of chains when chains are required, and tells us whether the lower ventilator should be operated by Chain or Stay Bar. See Hardware on page 53.

8. *Kind of wall fastenings required.* This depends on the construction of the walls—whether brick, concrete or steel; also on the method of attaching windows. It is necessary to give attachments in detail. To do this refer to page 58 and specify by the numbers in circles the details at head, jambs and sill which will be used.

When the type of anchoring is specified, the quantities of anchors or clips supplied are as follows:

	For units 3 or 4 lights wide	For units 5 or 6 lights wide
At head.....	2 per unit	3 per unit
At sill.....	2 per unit	3 per unit

	For unit 1 light high	For unit 2, 3 or 4 lights high	For unit 5 or 6 lights high	For unit 7 lights high
At each jamb.....	1	2	3	4

When detail 79 or similar detail is specified, and the steel contractor punches holes for No. 435 Clips, a clip is provided for each hole, otherwise clips are provided on approximately 2-ft. centers.

When anchoring is not definitely specified, wall ties No. 2472 or 1739 (shown on page 53) are furnished at the sill only.

Special Windows

Although special windows are not recommended, it is sometimes necessary to use them. To order special windows use the same system of symbols as used for standard windows (explanation on page 55). Be sure to give the correct glass size as a check on the window dimension.

Window dimensions for Special Glass using angle frame member section 308 are obtained as follows:

For single units, add ⅜ in. to the glass size (width or height as required) of each light. Multiply by the number of lights and add ⅞ in.

It is recommended that ventilators not exceeding four lights in width and two lights in height be used.

Single ventilators should not exceed 5 ft. 0 in. in width or 3 ft. 6 in. in height.

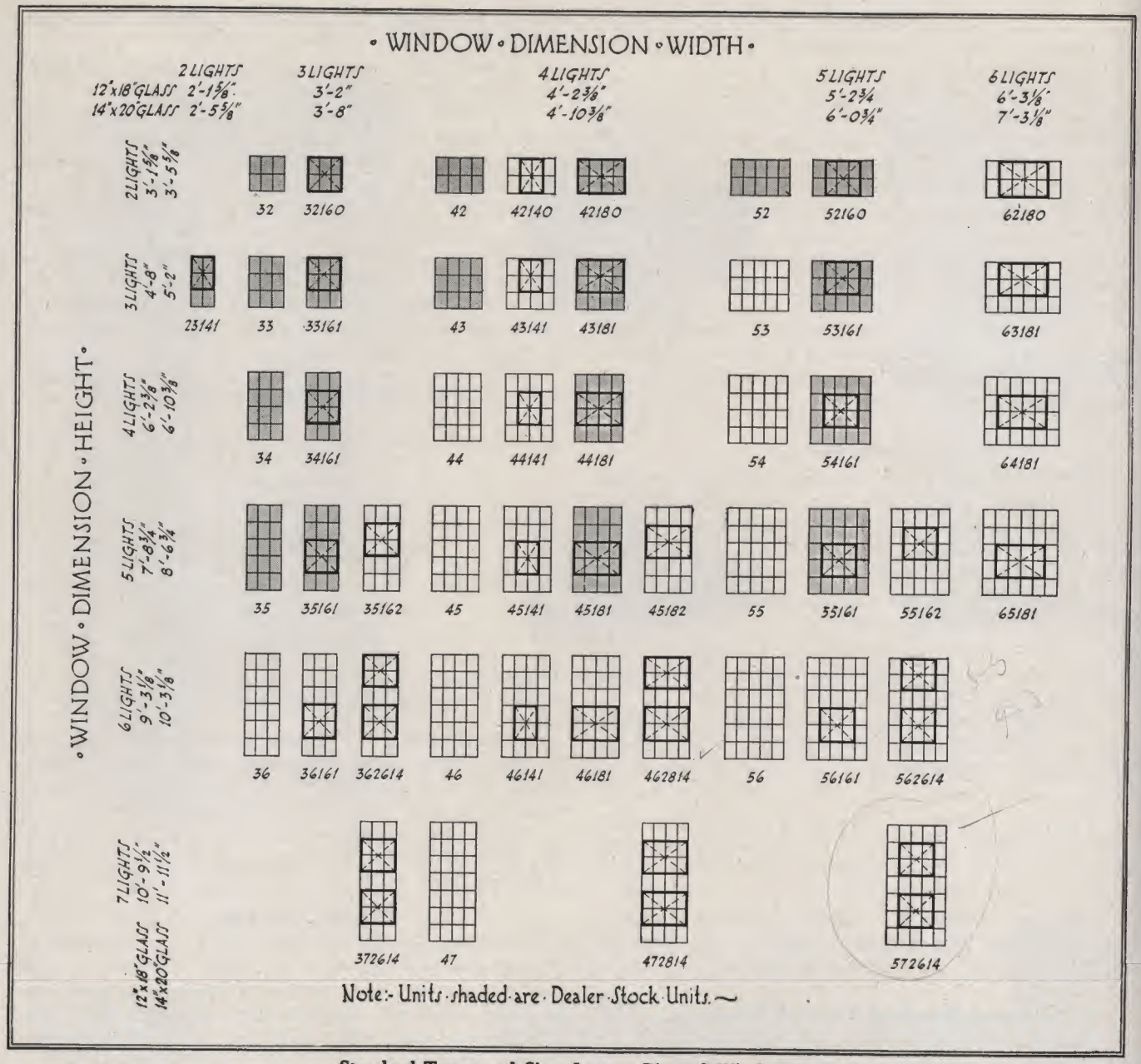
Use glass sizes for stationary lights when figuring opening sizes. Glass in border lights of ventilators is reduced 1 in. in height or width or both to allow for space taken by the weathering.

Erection

When Pivoted Windows are not erected by Lupton, the foreman in charge of erection should be thoroughly familiar with the correct method of installation. A booklet giving necessary erection data is furnished free.

Standard sizes cost less than specials

Continued on next page



Standard Types and Sizes Lupton Pivoted Windows
Units shaded are dealer stock

Dealer Stock Windows

DEALER STOCK WINDOWS are the most used sizes of Lupton stationary and pivoted windows in 12x18 in. and 14x20 in. glass sizes. They are strictly standard in construction and are carried completely assembled and ready for shipment by Lupton sales representatives throughout the country.

Lupton Dealer Stock Windows (shown shaded in diagram above) should always be used where possible in preference to units not carried in stock. They cost no more and can be delivered immediately from factory or warehouses.

Lupton Standard Windows include all those sizes and ventilator arrangements in common use. They are not assembled in advance nor kept in stock in warehouses, but large stocks of the cut bars are always carried in our factory ready for quick assembly.

Explanation of Symbol Numbers

The following information is given you so that you can intelligently order Lupton Pivoted Windows by following layouts shown on this and the next page.

Numerals of nomenclature indicate the following:

First numeral—number of lights wide.

Second numeral—number of lights high.

Third numeral—number of ventilators.

Fourth numeral—number of lights per ventilator.

Fifth numeral—number of stationary lights high between bottom of window and bottom of ventilator.

Sixth numeral—number of lights high between bottom of window and bottom of upper ventilator.

Use of Symbol Numbers in Ordering

The symbol number must always be preceded by the glass size. Standard glass sizes are 12x18 in. and 14x20 in. All others are special.

In addition to the glass size and the symbol, the number of mullions, if any are required, must be indicated.

Examples: 14x20—56 indicates a unit taking 14x20 in. glass, 5 lights wide and 6 lights high stationary.

14x20—45181 indicates a unit taking 14x20 in. glass, 4 lights wide and 5 lights high, having one 8 light ventilator with one light between the bottom of the ventilator and the sill.

12x18—562614 indicates a unit taking 12x18 in. glass, 5 lights wide, 6 lights high, 2 six light ventilators, the lower ventilator one light above the sill and the upper ventilator 4 lights above the sill.

Units for multiple openings are ordered thus: 2 openings 3—12x18—46181 means that for each of 2 openings there is

For quick deliveries, use standard sizes

Continued on next page

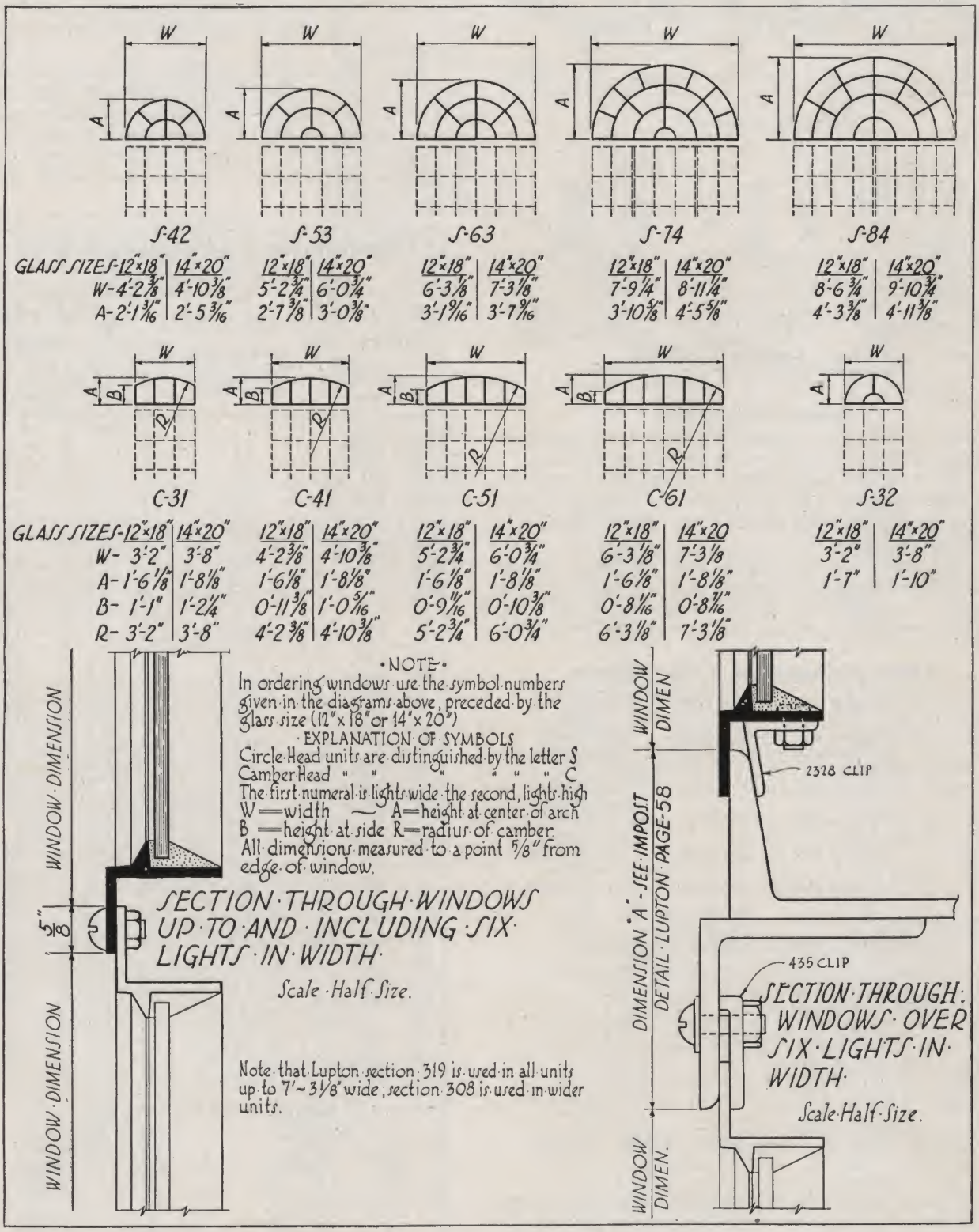
required 3 units taking 12x18 in. glass and having the window symbol 46181, this indicates that 2 mullion bars are required for each opening.

If more than one type of unit is required for a multiple opening, they must be listed separately, thus: One opening 2—12x18—36: 2—12x18—56181: 1—12x18—46183.

Camber and Circle Head Units

Standard Camber and Circle Head units shown below are made to fit above standard square head units taking 12x18 in. or 14x20 in. glass. Units other than those shown are special, require a longer time for fabrication and are higher priced. Units up to and including those 6 lights wide are bolted directly to the single square head unit below. Holes are punched in the flanges of the camber and circle head units for this purpose, but are not punched in the square head unit unless specified. Units over 6 lights wide are used above combinations of two or three square head units as indicated by the dash lines in the diagram and the impost detail for multiple unit openings shown on page 58 must be used.

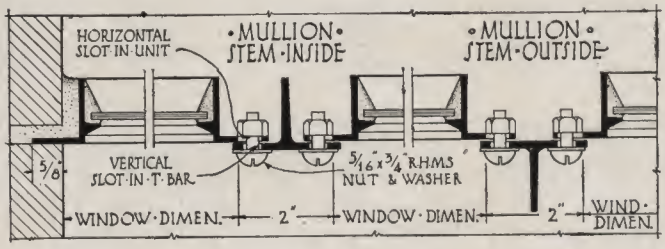
In ordering always specify glass size (12x18 in. or 14x20 in.) as well as the number of the unit.



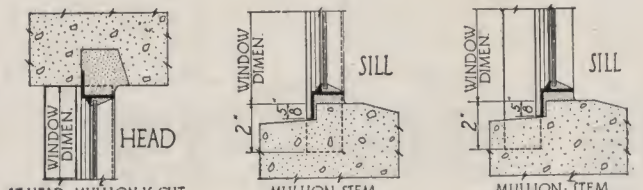
Continued on next page

Opening Dimensions

Window dimensions given in the diagram of sizes on page 55 are 1¼ in. less than overall dimensions of the unit and are measured to the points indicated in the details on page 58.



Details of Mullions
Scale 3" = 1' 0"



Details of Mullion Installation
Scale ½" = 1' 0"

Widths of Openings

The width of the masonry opening for a single unit is identical with the window dimension of the unit.

The width of the masonry opening for a multiple unit window is equal to the sum of the window-dimension-widths of the units plus 2 in. for each mullion. See detail on this page.

The table on this page gives opening dimensions obtainable with the various combinations of units. A handy celluloid slide scale for figuring heights and widths of window openings will be sent free on request.

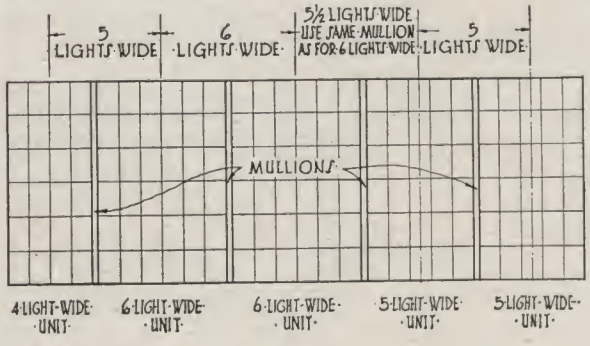
Limits of Heights of T Bar Mullions

I Up to { 5 lights wide x 4 lights high / or / 6 lights wide x 3 lights high } use { Section #121 with Stem Inside

II Up to { 5 lights wide x 5 lights high / or / 6 lights wide x 4 lights high } use { Section #121 with Stem Outside

III Up to 6 lights wide x 5 lights high use { Section #339 with Stem Inside

IV Up to { 5 lights wide x 7 lights high / or / 6 lights wide x 6 lights high } use { Section #339 with Stem Outside



Note: "Lights Wide" as used in the table above is considered as one-half the lights in the unit on the left of the mullion plus one-half the lights in the unit on the right of the mullion.

Mullions

Mullions are T bars, section 121 or 339 (see page 59). Flanges are always placed on the outside, but stems may project inside or outside as required for strength. See details and table on this page. Steel sills require that the stem always be placed outside.

Mullion is always cut off flush with the window dimension at the lintel. At the sill the standard cut is as shown in the drawing on this page. The flange stops flush with the bottom of the unit but the stem enters brick, concrete, tile and precast concrete sills to the depth of 1⅜ in. (2 in. from measuring point of window dimension).

When specified, the mullion stem can be cut off flush with the bottom of the window if it projects outside or, if the stem projects inside, it can be notched to clear the inside sill. It is advisable to cut mullions this way if the sill is of wood, or where it is not desired to provide grooves in cut stone sills for the mullion stems to enter.

Combinations of Standard Sizes Widths of Openings

12" x 18" Glass WIDTHS OF OPENINGS	Total Number of Units	NO. OF LIGHTS PER UNIT Position of each number indicates position of unit in opening	Total Number of Lights	Total Number of Mullions	14" x 20" Glass WIDTHS OF OPENINGS
2' 1⅝"	1	2	2	None	2' 5⅝"
3' 2"	1	3	3	"	3' 8"
4' 2⅜"	1	4	4	"	4' 10⅜"
5' 2¾"	1	5	5	"	6' 0¾"
6' 3⅛"	1	6	6	"	7' 3⅛"
6' 6"	2	3, 3	6	1	7' 6"
8' 6¾"	2	4, 4	8	1	9' 10¾"
9' 10"	3	3, 3, 3	9	2	11' 4"
10' 7½"	2	5, 5	10	1	12' 3½"
10' 10⅜"	3	3, 4, 3	10	2	12' 6⅜"
11' 10¾"	3	3, 5, 3	11	2	13' 8¾"
11' 10¾"	3	4, 3, 4	11	2	13' 8¾"
12' 8¼"	2	6, 6	12	1	14' 8¼"
12' 11⅛"	3	4, 4, 4	12	2	14' 11⅛"
13' 11½"	3	4, 5, 4	13	2	16' 1½"
13' 11½"	3	5, 3, 5	13	2	16' 1½"
14' 11⅞"	3	4, 6, 4	14	2	17' 3⅞"
14' 11⅞"	3	5, 4, 5	14	2	17' 3⅞"
15' 2¾"	4	3, 4, 4, 3	14	3	17' 6¾"
16' 0¼"	3	5, 5, 5	15	2	18' 6¼"
16' 0¼"	3	6, 3, 6	15	2	18' 6¼"
17' 0⅝"	3	5, 6, 5	16	2	19' 8⅝"
17' 0⅝"	3	6, 4, 6	16	2	19' 8⅝"
17' 3½"	4	4, 4, 4, 4	16	3	19' 11½"
18' 1"	3	6, 5, 6	17	2	20' 11"
19' 1⅜"	3	6, 6, 6	18	2	22' 1⅜"
19' 4¼"	4	3, 6, 6, 3	18	3	22' 4¼"
19' 4¼"	4	4, 5, 5, 4	18	3	22' 4¼"
20' 7½"	5	5, 3, 3, 3, 5	19	4	23' 9½"
21' 5"	4	5, 5, 5, 5	20	3	24' 9"
21' 5"	4	4, 6, 6, 4	20	3	24' 9"
21' 7⅞"	5	4, 4, 4, 4, 4	20	4	24' 11⅞"
22' 8¼"	5	4, 4, 5, 4, 4	21	4	26' 2¼"
22' 8¼"	5	3, 5, 5, 5, 3	21	4	26' 2¼"
23' 5¾"	4	5, 6, 6, 5	22	3	27' 1¾"
23' 8⅝"	5	5, 4, 4, 4, 5	22	4	27' 4⅝"
23' 11½"	6	3, 4, 4, 4, 4, 3	22	5	27' 7½"
24' 9"	5	4, 5, 5, 5, 4	23	4	28' 7"
25' 6½"	4	6, 6, 6, 6	24	3	29' 6½"
25' 9⅜"	5	3, 6, 6, 6, 3	24	4	29' 9⅜"
26' 0¼"	6	4, 4, 4, 4, 4, 4	24	5	30' 0¼"
26' 9¾"	5	5, 5, 5, 5, 5	25	4	30' 11¾"
27' 10⅛"	5	5, 5, 6, 5, 5	26	4	32' 2⅛"
28' 1"	6	5, 4, 4, 4, 4, 5	26	5	32' 5"
28' 1"	6	3, 5, 5, 5, 5, 3	26	5	32' 5"
28' 10½"	5	6, 5, 5, 5, 6	27	4	33' 4½"
29' 10⅞"	5	5, 6, 6, 6, 5	28	4	34' 6⅞"
30' 1¾"	6	4, 5, 5, 5, 5, 4	28	5	34' 9¾"
30' 11¼"	5	6, 6, 5, 6, 6	29	4	35' 9¼"

Heights of Openings

12" x 18" Glass Lights High	Height of Openings	14" x 20" Glass Lights High	Height of Openings
1	1' 7¼"	1	1' 9¼"
2	3' 1⅝"	2	3' 5⅝"
3	4' 8"	3	5' 2"
4	6' 2⅜"	4	6' 10⅜"
5	7' 8¾"	5	8' 6¾"
6	9' 3⅛"	6	10' 3⅛"
7	10' 9½"	7	11' 11½"

Continued on next page

Heights of Openings

The height of the opening required for a unit is considered as identical with the window dimension height. The outside face of the sill member, however, must be left uncovered as shown in details so that water may drain away from the window.

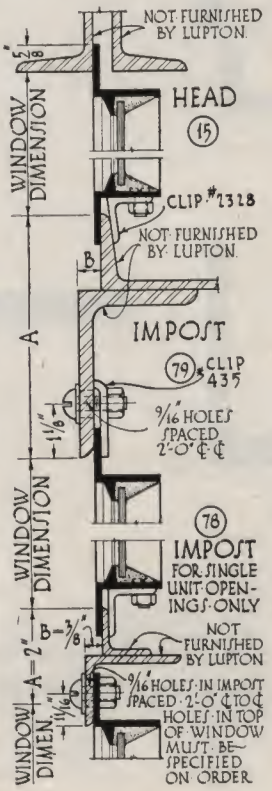
Imposts

Where units are placed one above the other, imposts of structural steel, not furnished by Lupton, are to be used. Designs are given on this page.

Where circle head or camber head units are placed above regular units, structural steel imposts are not required unless the window is over 6 lights wide.

12"x18" GLASS No. OF LIGHTS WIDE	DESIGN OF IMPOST	A DIM.	B DIM.	14"x20" GLASS No. OF LIGHTS WIDE
USED FOR SINGLE UNIT OPENINGS ONLY				
3 TO 6	TWO ANGLES ONE 2"x1½"x⅜" ONE 1"x1"x⅛"	2"	⅜"	3 TO 6
USED FOR BOTH SINGLE & MULTIPLE UNIT OPGS.				
3 TO 9	TWO ANGLES 2½"x2½"x5/16"	5"	⅜"	3 TO 8
10 TO 13	TWO ANGLES 2½"x2½"x5/16" ONE 6"x¼" PLATE —OR— ONE 4" CHANNEL ONE ANGLE— 3½"x2½"x¼"	5¼"	⅜"	9 TO 11
		5¼"	½"	
14 TO 18	TWO ANGLES 3"x3"x5/16" ONE 6"x¼" PLATE —OR— ONE 6" CHANNEL ONE ANGLE— 4"x3"x5/16"	6⅛"	½"	12 TO 16
		6⅛"	½"	

DEAD LOAD OF WINDOW & IMPOST TO BE SUPPORTED BY TIE RODS HUNG FROM BUILDING LINTEL AND ATTACHED TO IMPOST AT MULLION POINTS. TIE RODS NOT FURNISHED BY LUPTON.

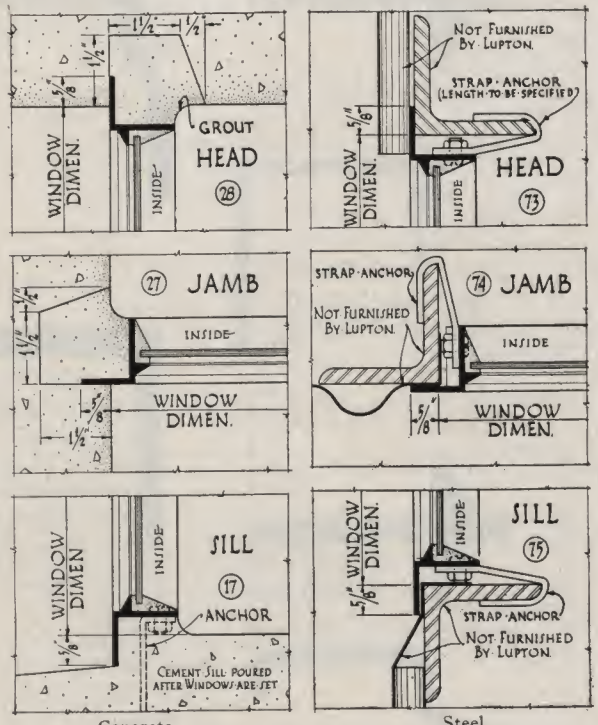


Impost Details
Scale—3 in. = 1 ft. 0 in.

Glass Sizes

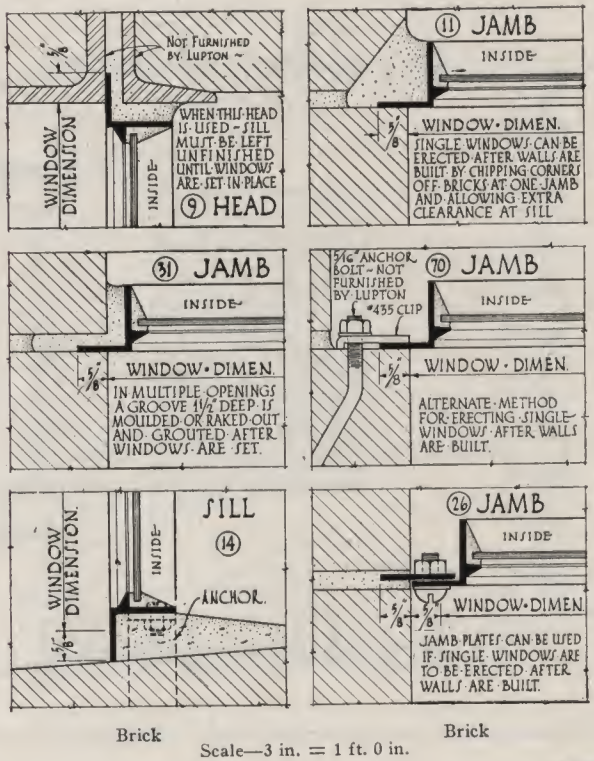
Lights in stationary sections of Standard Window and Dealer Stock units are the full 12x18 in. or 14x20 in. size. The outside lights of all ventilators whether standard or special, are reduced 1 in. in width or height, or both, to allow for the space taken by the weathering around the ventilators. The diagram at right is typical of a unit using 14x20 in. glass, and shows the reduction in glass size in the ventilator. Other glass sizes are reduced in a similar way.

14/20	14/20	14/20	14/20	14/20
14/20	13/19	14/19	13/19	14/20
14/20	13/19	14/19	13/19	14/20
14/20	14/20	14/20	14/20	14/20



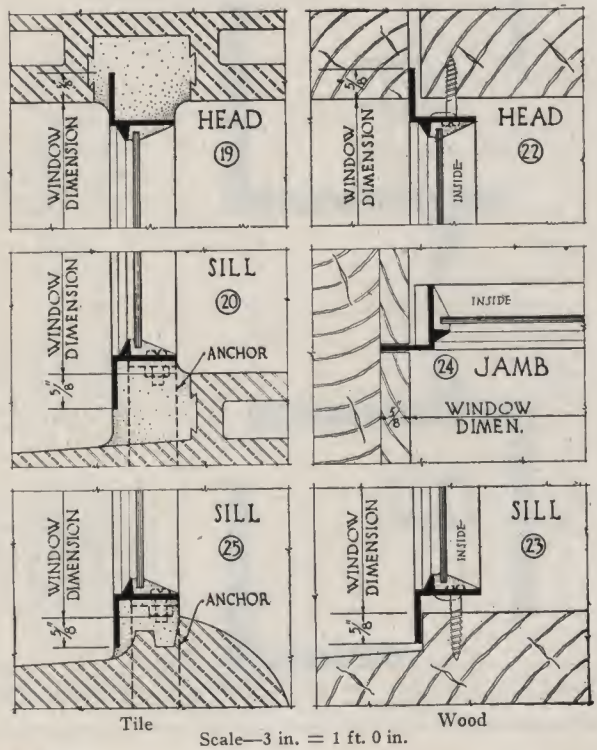
Concrete Steel

Scale—3 in. = 1 ft. 0 in.



Brick Brick

Scale—3 in. = 1 ft. 0 in.

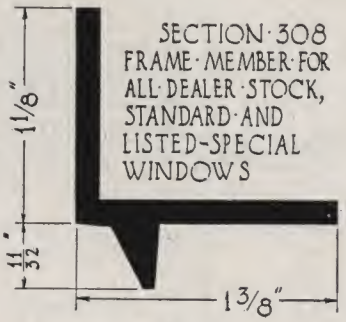


Tile Wood

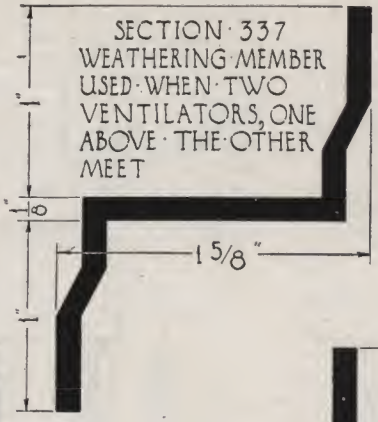
Scale—3 in. = 1 ft. 0 in.

Continued on next page

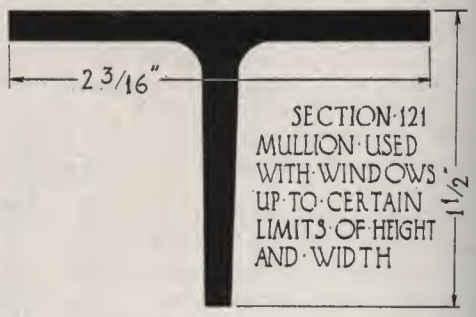
LUPTON · PIVOTED · WINDOWS
· FULL · SIZE · SECTIONS ·



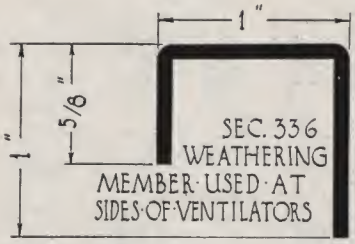
SECTION · 308
FRAME · MEMBER · FOR ALL · DEALER · STOCK, STANDARD · AND LISTED - SPECIAL WINDOWS



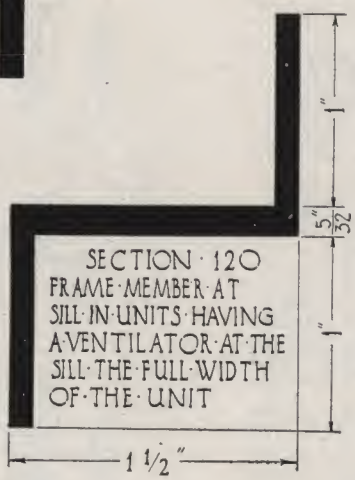
SECTION · 337
WEATHERING · MEMBER USED · WHEN · TWO VENTILATORS, ONE ABOVE · THE · OTHER MEET



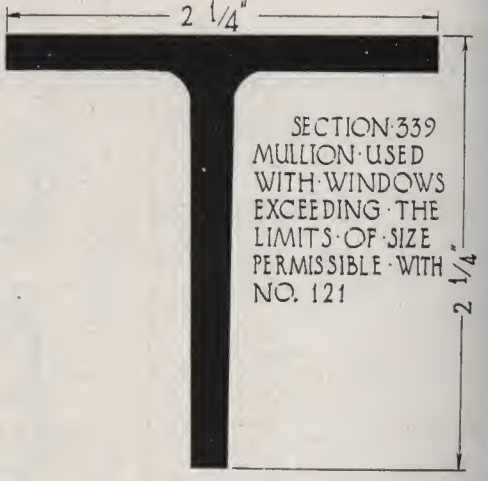
SECTION · 121
MULLION · USED WITH · WINDOWS · UP · TO · CERTAIN LIMITS · OF · HEIGHT AND · WIDTH



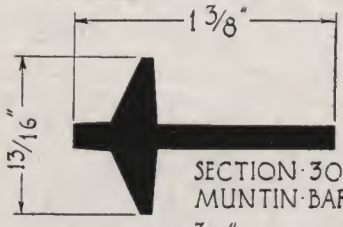
SEC. 336
WEATHERING MEMBER · USED · AT SIDES · OF · VENTILATORS



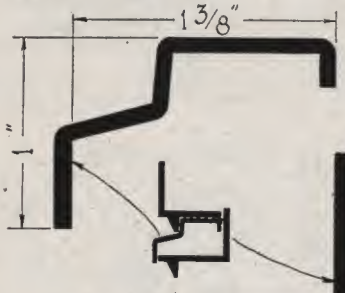
SECTION · 120
FRAME · MEMBER · AT SILL · IN · UNITS · HAVING A · VENTILATOR · AT · THE SILL · THE · FULL · WIDTH OF · THE · UNIT



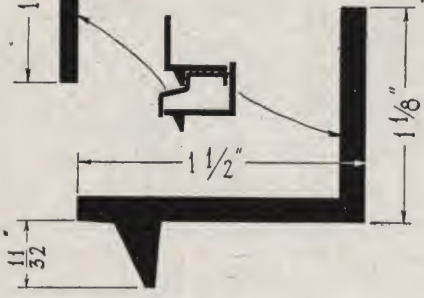
SECTION · 339
MULLION · USED WITH · WINDOWS EXCEEDING · THE LIMITS · OF · SIZE PERMISSIBLE · WITH NO. 121



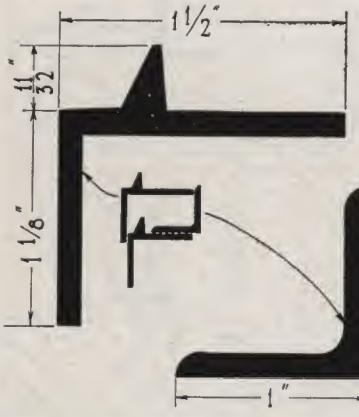
SECTION · 300
MUNTIN · BAR



SECTION · 335
WEATHERING · MEMBER USED · WHEN · VENTILATOR OCCURS · AT · TOP · OF WINDOW



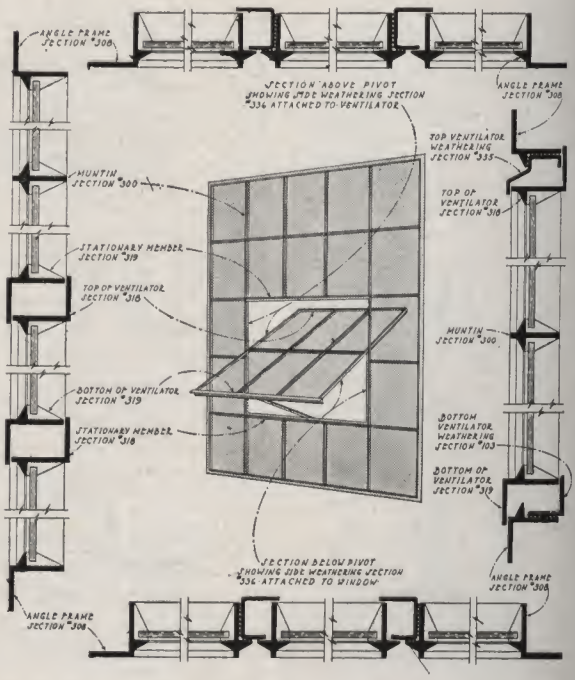
SECTION · 318
TOP · RAIL · OF · ALL VENTILATORS



SECTION · 319
BOTTOM · RAIL · OF ALL · VENTILATORS

SECTION · 103
WEATHERING · MEMBER USED · WHEN · VENTILATOR OCCURS · AT · BOTTOM OF · WINDOW

· CONSTRUCTION · OF · WINDOW ·



Continued on next page

LUPTON UNDERWRITERS' PIVOTED WINDOWS

Lupton PHILADELPHIA UNDERWRITERS LABORATORIES, INC. INSPECTED FIRE WINDOW FRAME NO.S. A 100

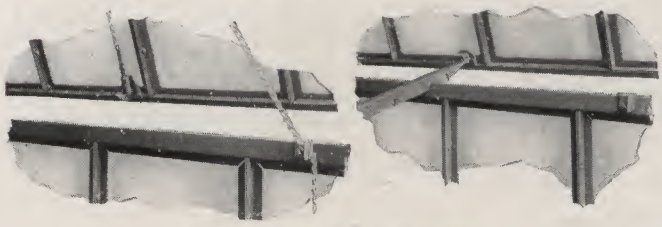
Important: Lupton Underwriters' Pivoted Windows are furnished only when specified in bid and mentioned in contract

Wherever wire glass is used for fire protection it is advisable to specify Underwriters' Windows and have the Underwriters' Label. This insures that the full measure of safety intended is actually secured.

Lupton Dealer Stock and Standard Windows of prescribed sizes may be converted into Underwriters' Windows by the addition of glazing angles and special hardware.

As all the members are standard, orders for Lupton Underwriters' Windows can be filled from bars in factory stock, subject only to the delay for adding the hardware and glazing angles. This is the most economical way to buy Underwriters' Windows. Such orders can usually be filled promptly after receipt of complete information.

Where immediate delivery is essential, Dealer Stock Windows can be altered at our Philadelphia, Cleveland and Chicago Warehouses, at a slight extra cost, to receive the special glazing angles and hardware before shipment. *Windows cannot be altered to receive Underwriters' Label after shipment.*



Spring Catch and Stay Bar
Former has fusible link in chain. Latter may be used instead of Catch and Chain, subject to approval of local inspection boards

It is important that the following information be given with the order:

1. Groupings of units in masonry openings. By this is meant the number and size of units in each masonry opening.

2. Detail of head, sill and jamb conditions on single unit openings as well as multiple openings.

The grouping of units is necessary as the allowable width of unit is less in a multiple opening than in a single opening.

The details at head, sill and jamb are necessary so that proper connections of window and mullions to the opening can be furnished.

This information is demanded by the Underwriters and the labeling of windows is held up by the inspector until this information is given to him.

The Underwriters' Requirements

Following are the Underwriters' Laboratories' specifications, in condensed form, so far as they apply to pivoted windows:

1. Single Window units cannot exceed 84 sq. ft. in area, with neither dimension exceeding 12 ft. When mullions are used, each window unit cannot exceed 7 ft. in width or 12 ft. in height.

2. The exposed glass area must not exceed 350 sq. in. in any light, measured from toe to toe of the glazing angles. (Standard sizes are less than this.) One-quarter in. wire glass is always required.

3. In addition to putty, the lights are held by steel glazing angles measuring ½x$\frac{2}{16}$ in.: the long leg bears against the glass. The angles are held by steel screws.

4. Not more than two ventilators may be used in any window unit.

5. The hinge is of standard Lupton design and construction.

6. Spring catches are of standard Lupton construction. The catch is at the bottom of the ventilator, so that its own weight tends to engage it if the spring fails. The chain passes over a standard roller at the top of the ventilator.

7. The chain must contain a fusible link. When the link fuses, the ventilator closes and locks automatically.

8. With the approval of the local inspection board, stay bars for manual operation may be used instead of spring catches and fusible links.

9. Mullions must be Lupton Section 339 and must be anchored at head and sill, either by projecting into the masonry, or by angle clips furnished to suit the construction of the building.

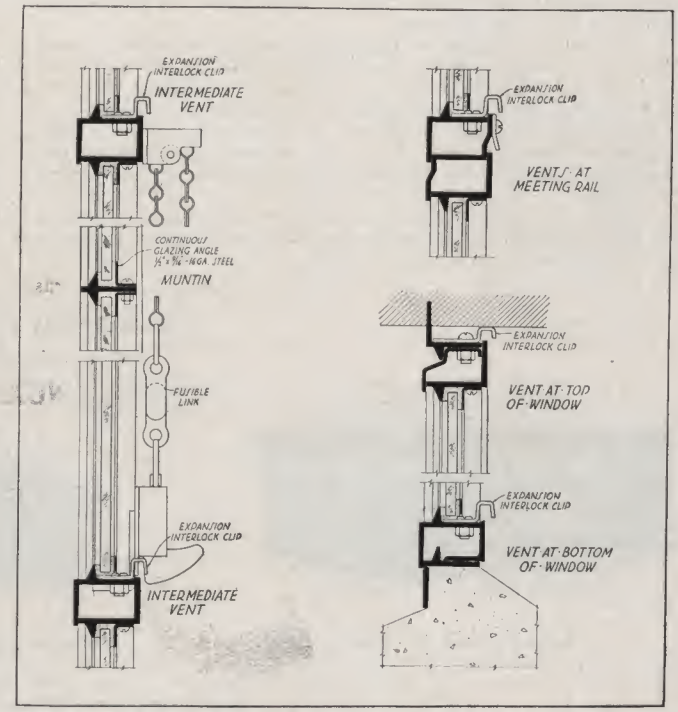
10. Lupton Wall Ties No. 2472, or other wall ties not less than 4 in. long are required at brick and concrete sills.

11. Expansion clips must be used at the top and bottom rails of all ventilators. These clips serve as an additional locking feature in case of fire.

12. One stop lug per ventilator must be used to limit opening of ventilator to 135°. (On Lupton windows this lug is made integral with the filler plate at the pivot.)

13. Curved or splayed head units cannot be labeled.

Note: *There is no restriction on the over-all width of an opening, provided the mullions and window units conform to the above specifications.*



Details Showing Expansion Clips and Fusible Links for Underwriters' Pivoted Windows
Scale 3″ = 1′ 0″

Continued on next page

LUPTON COMMERCIAL PROJECTED WINDOWS

for Sidewalls of Industrial Buildings

Commercial Projected Windows in construction and application are essentially the same as Lupton Pivoted Windows. The ventilators, however, have the Lupton Projected movement. The ventilators are balanced by means of friction shoes to swing out at bottom and remain open in any reasonable position, without the use of stay bar or adjuster. Some of the standard units shown on page 62 have a small ventilator at the sill opening in-at-top and acting as a windshield when open. All wall details, mullion details and impost details as well as wall opening sizes are same as for pivoted windows.

SPECIFICATION FOR LUPTON COMMERCIAL PROJECTED WINDOWS

Work Included

1. Furnish and install where shown on drawings Lupton Commercial Projected Windows, manufactured by David Lupton's Sons Co., Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate for the architect's approval complete shop and installation drawings. These shall show scaled sections of windows and frame members, details of construction, hardware, anchoring, etc.

Materials

3. Sections shall be of specially designed, hot rolled, solid steel.

4. Frame Members shall be angle sections.

5. Muntins shall be special cruciform section 1⅝ in. deep.

6. Vertical mullions shall be hot-rolled, solid T-Bar section.

Note: Structural Steel members forming imposts are not furnished by the window manufacturer.

Construction

7. All Commercial Projected Windows shall be designed for inside glazing.

8. Both frames and ventilators shall be assembled by tenoned, riveted joints at the corners. Ventilators shall be welded at corners. Continuous, two point flat contact weathering shall be provided between ventilators and frames.

9. Muntin bars shall be continuous from top to bottom, and from side to side, between frame members or ventilator members. They shall be attached to frame members or ventilator members by tenoned, riveted joints and shall be so interlocked as not to decrease their ultimate strength at the intersection.

10. Vertical mullions shall be provided with bolts for frame attachment where two or more windows are placed side by side in the same opening.

11. Steel Clips shall be furnished to attach window to steel structure in types to cover all possible conditions.

12. Sill anchor clips shall be furnished. At least one clip shall be used for each two lights in the width of a unit.

13. Each ventilator shall be accurately pivoted on two Ventilator Arms of solid steel. The connections between the Ventilator Arms and the Window Frames shall be made by steel arm blocks.

14. Each ventilator shall be equipped with two brass friction shoes, sliding vertically in the Ventilator Jambs to guide the Ventilator and prevent rattling. Each shoe shall be equipped with a rust-proofed, flat steel spring attached to the Ventilator to insure constant pressure at the Jambs.

15. Universal Clips—An angle clip 1⅛x1 in., 2 in. long shall be riveted to the ventilator frame.

Note: The Universal Clip allows any type of Lupton Commercial Projected Window hardware to be attached to the ventilator before or after glazing.

Hardware

16. All hardware (listed below) shall be of malleable iron and shall be shipped unattached, carefully packed to prevent damage until applied for use.

17. Provide the following hardware:

For open out ventilators—Ring Type Cam Handle and Pull Down Ring.

For open in ventilators—within reach from floor—Cam Handle with straight grip.

For open in ventilators—beyond reach from floor—Spring catch.

Erection

18. All Commercial Projected Windows shall be erected by window contractor in prepared openings, unless otherwise specified.

Note: Include in the masonry specification that all masonry openings shall be accurately constructed in accordance with the installation details for Lupton Commercial Projected Windows. All grouting, pointing, etc. should be done by the mason contractor after the windows are set.

19. Lupton Commercial Projected Windows shall be set plumb and true, properly aligned and securely anchored before glazing. All ventilators shall be properly adjusted before glazing.

20. All hardware shall be applied under window manufacturer's directions.

Painting

21. All windows shall receive one shop coat of window manufacturer's standard, dark gray paint, oven-dried.

Note: See page 1.

Glass and Glazing

22. Furnish standard wire glazing clips, four to each light.

Note: (See also page 1). Specify glass and glazing under proper heading elsewhere in specification.

(a) Do not specify single thickness glass.

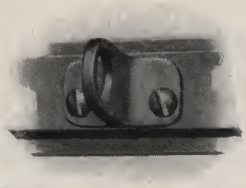
(b) Specify high-grade steel window putty (ordinary wood sash putty must not be used).

(c) Specify that Lupton Commercial Projected Windows shall be glazed from the inside; the glass set in a bed of putty and held by Lupton standard wire glazing clips, four to each light.

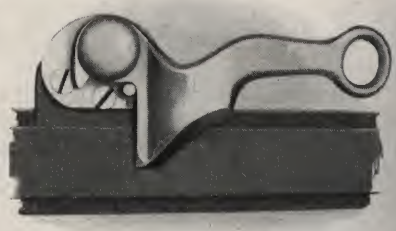
STANDARD HARDWARE

Malleable iron hardware (illustrated) is furnished unless otherwise specified.

Cam Handle No. 308
Used at top of Projected-In-at-Top Ventilators



Pull-down Ring No. 151
Use at top of all Projected-Out-at-Bottom Ventilators



Ring Type Cam Handle No. 141
Used at bottom of all Projected-Out-at-Bottom Ventilators. Mounted on universal clip

Hardware Alternates

Furnished only when specified.

For Projected-In-at-Top ventilators beyond reach from floor—Malleable Iron Spring Catch No. 5, Keeper No. 7.

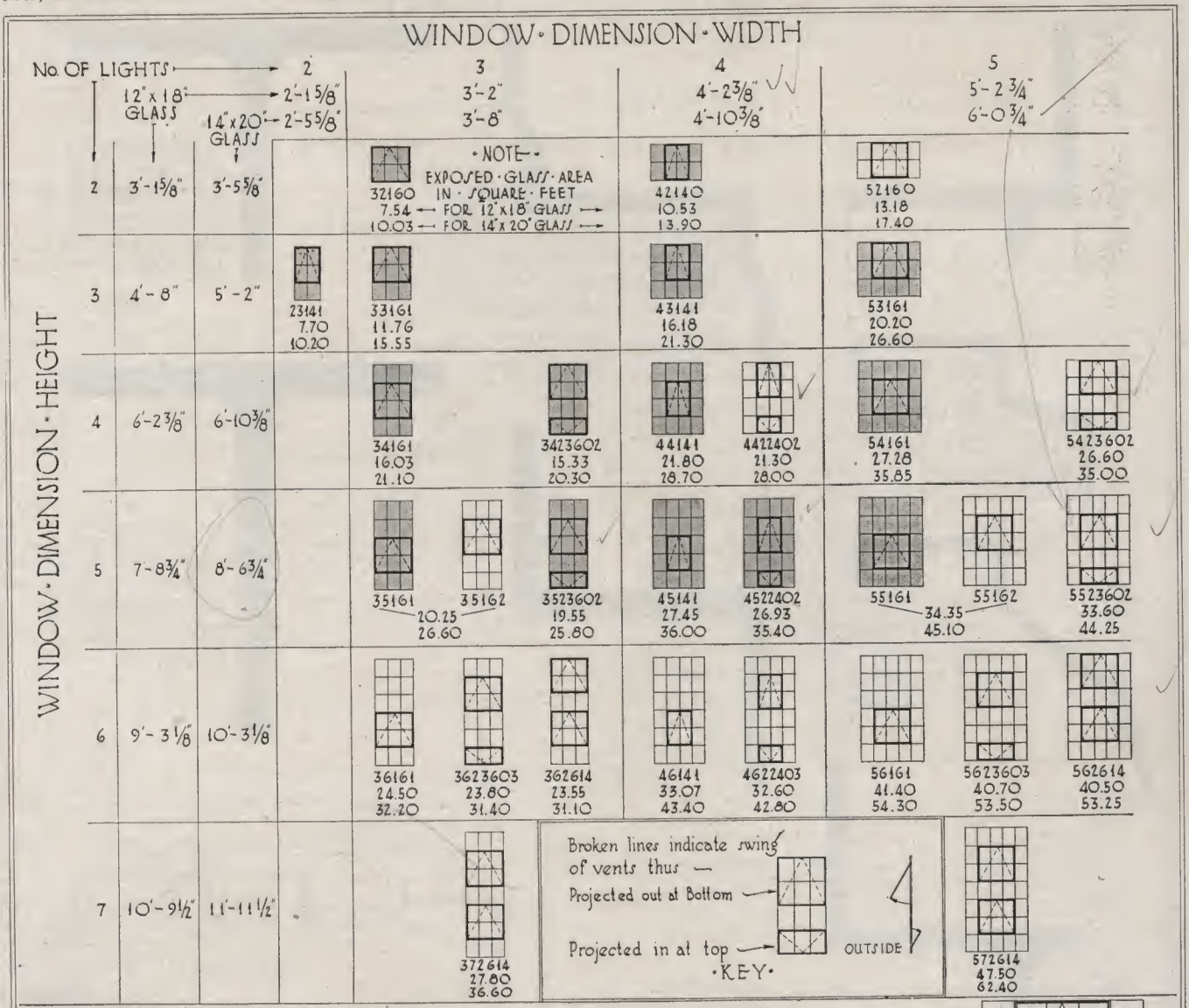
Bronze hardware in standard or alternate types can be furnished at added cost when specified.

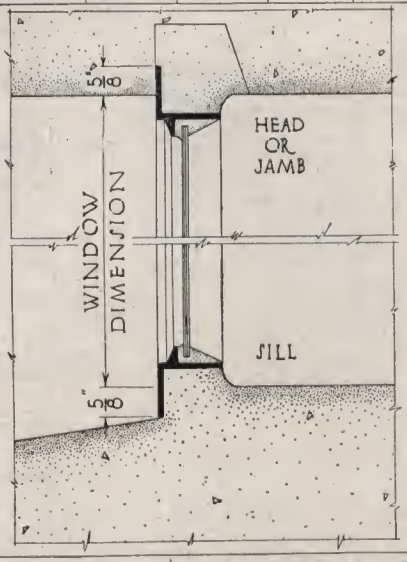
Continued on next page

Symbol Numbers

Symbol numbers shown in diagram below are same as for Pivoted windows (page 55) except in case of unit having two vents of different sizes; fifth numeral indicates number of lights in upper vent.

Example: 4522402 would indicate a unit having, 4 lights wide, 5 lights high, 2 vents, 2 lights in lower vent, 4 lights in upper vent, lower vent at sill, upper vent 2 lights from sill.





Shaded Units are dealer stock windows.

Dimensions—Dimensions are the same as for Pivoted Windows shown on page 55. The window dimension of a unit is identical with the masonry or structural opening required for that unit. See sketch at left for measure points.

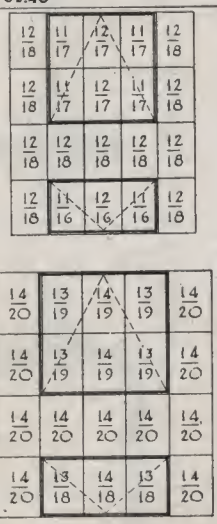
Mullions—Mullion details and multiple opening dimensions are the same as for Pivoted Windows. See page 57.

Imposts—Imposts are the same as for Pivoted Windows. See page 58.

Glass—Glass in fixed lights is full 14x20 in. or 12x18 in. size. Border lights in ventilators are reduced as shown in diagrams at right to allow 1 in. for weathering.

Anchoring—Method of anchoring is same as for Pivoted Windows. See pages 54 and 58.

Ordering—Dimensions of units, and the size, position and swing of ventilators must be exactly as shown in the diagrams; otherwise the window is a special. Windows can be listed using the same method outlined on page 55 for Pivoted Windows. Always give glass size (12x18 in. or 14x20 in.), followed by the symbol number of the window as given in the diagram above. Use 14x20-in. glass in preference to 12x18-in. glass.



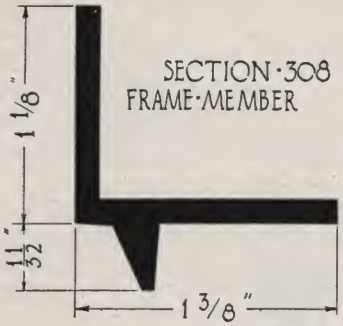
NO SCALE

LUPTON · COMMERCIAL · PROJECTED · WINDOWS
STANDARD · TYPES · AND · SIZES

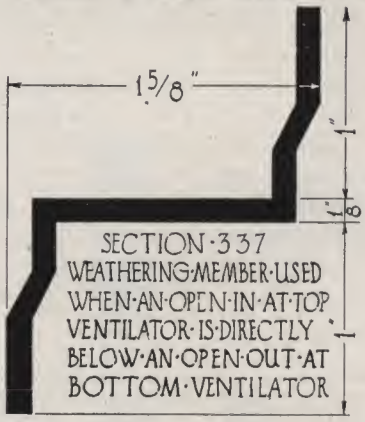
PLATE · NO. K-2
JULY – 1929

Continued on next page

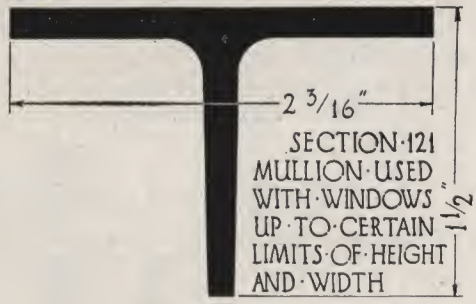
COMMERCIAL · PROJECTED · WINDOWS · FULL · SIZE · SECTIONS ·



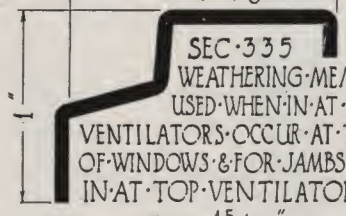
SECTION · 308
FRAME · MEMBER



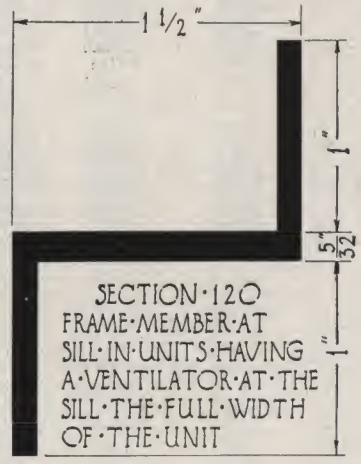
SECTION · 337
WEATHERING · MEMBER · USED WHEN · AN · OPEN · IN · AT · TOP VENTILATOR · IS · DIRECTLY BELOW · AN · OPEN · OUT · AT BOTTOM · VENTILATOR



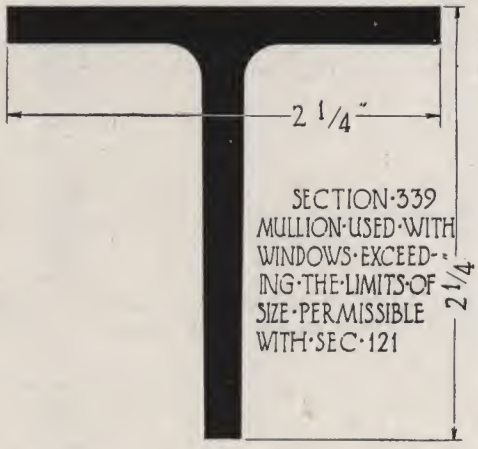
SECTION · 121
MULLION · USED WITH · WINDOWS UP · TO · CERTAIN LIMITS · OF · HEIGHT AND · WIDTH



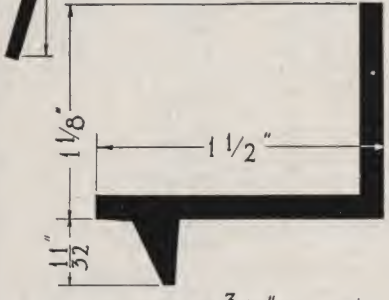
SEC · 335
WEATHERING · MEMBER USED · WHEN · IN · AT · TOP VENTILATORS · OCCUR · AT · TOP OF · WINDOWS · & · FOR · JAMBS · OF IN · AT · TOP · VENTILATORS



SECTION · 120
FRAME · MEMBER · AT SILL · IN · UNITS · HAVING A · VENTILATOR · AT · THE SILL · THE · FULL · WIDTH OF · THE · UNIT

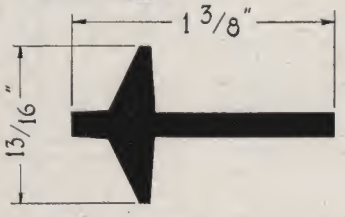


SECTION · 339
MULLION · USED · WITH WINDOWS · EXCEED-ING · THE · LIMITS · OF SIZE · PERMISSIBLE WITH · SEC · 121

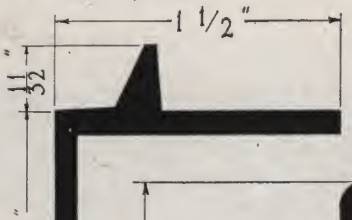


SECTION · 375
WEATHERING · MEMBER USED · AT · TOP · OF · ALL OUT · AT · BOTTOM VENTILATORS

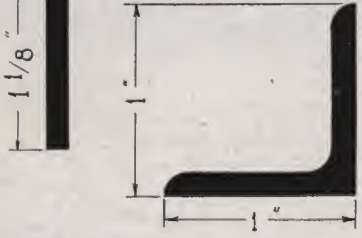
SECTION · 318
TOP · RAIL · OF · ALL VENTILATORS



SECTION · 300
MUNTIN · BAR

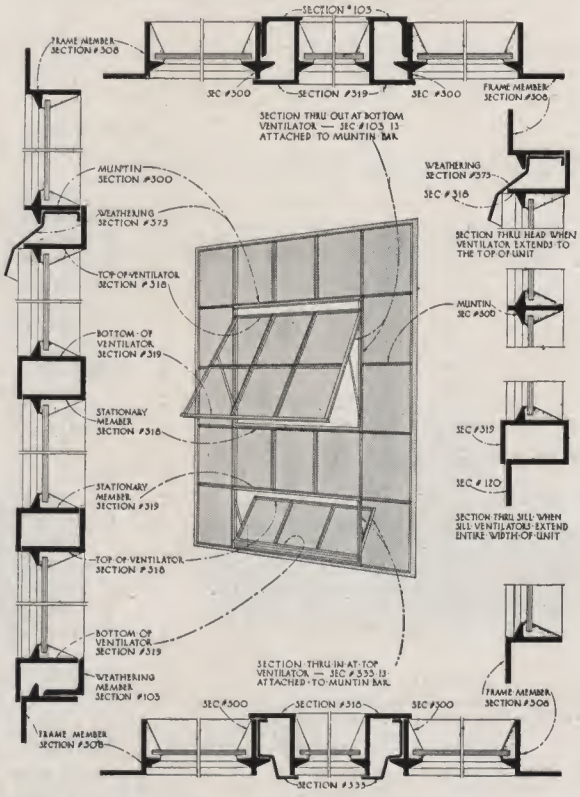


SECTION · 319
BOTTOM · RAIL · OF ALL · VENTILATORS



SECTION · 103
WEATHERING · MEMBER FOR · ALL · VENTILATORS OCCURING · AT · BOTTOM OF · WINDOWS · AND · FOR JAMB · WEATHERING · OF ALL · OUT · AT · BOTTOM VENTILATORS

· CONSTRUCTION · OF · WINDOW ·



Continued on next page

LUPTON OPERATING DEVICE (L.O.D.)

Lupton Operating Device is a high grade type of torsion operator in which the inherent weaknesses of the torsion type have been eliminated.

Designed for the operation of center pivoted side wall steel windows.

It can be applied as satisfactorily to existing windows as to a new installation. Operation is by hand chain or by hand wheel, the latter being used where several tiers of ventilators are to be operated from one station.

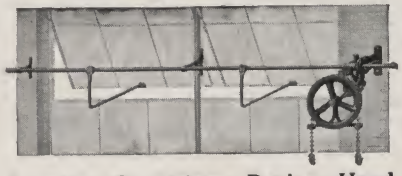
SPECIFICATION FOR LUPTON PIVOTED WINDOW OPERATOR—TORSION TYPE

Work Included

1. Furnish and install where shown on drawings Lupton Operating Device, manufactured by DAVID LUPTON'S SONS COMPANY, Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate for the architect's approval complete shop drawings. These shall show scaled details of construction, etc.



Lupton Operating Device—Hand Chain Type Applied to Steel Pivoted Windows

Materials and Construction

3. Power shall be a machine cut steel worm operating a gray cast iron segment worm gear assembled with a gray cast iron yoke and mounted on a malleable iron supporting bracket adapted to rigid attachment to building construction, or, by means of extension clips, to window mullion. The hub of the segment gear shall be drilled to fit the power transmission line and shall be tightly secured to it with set screws so as to rotate the line on the gear axis.

Note: There are two types of power shaft; 1 in. and ½ in. The larger will operate runs up to 40 ft. on each side of power, and no more than 12 average size ventilators. The smaller will operate runs up to 10 ft. on either side of power and no more than 4 average size ventilators.

4. Power shaft shall be standard black wrought iron pipe joined into a continuous line by standard threaded pipe couplings, screwed tight and secured by two ¼ in. steel pins.

5. Shaft shall be supported by malleable iron brackets attached to the window mullions or to the building construction.

6. Steel operating arms (one to each ventilator) shall be rigidly clamped to the shaft.

7. Connection between the operating arm and the ventilator shall be made by a steel vent rod and a malleable iron bracket mounted on the ventilator. Pivot pins at both ends of the vent rod shall be bronze.

Note: Specify operation by chain or by vertical steel shaft.

8. *Chain Operation*—Power shall be operated by No. 9 Register hand chain, operating over a chain wheel and guided by a guard. Both wheel and guard shall be gray iron castings. Wheel shall be accurately drilled, mounted in worm shaft and securely held by a set screw. Chain shall terminate approximately 2 ft. above the floor.

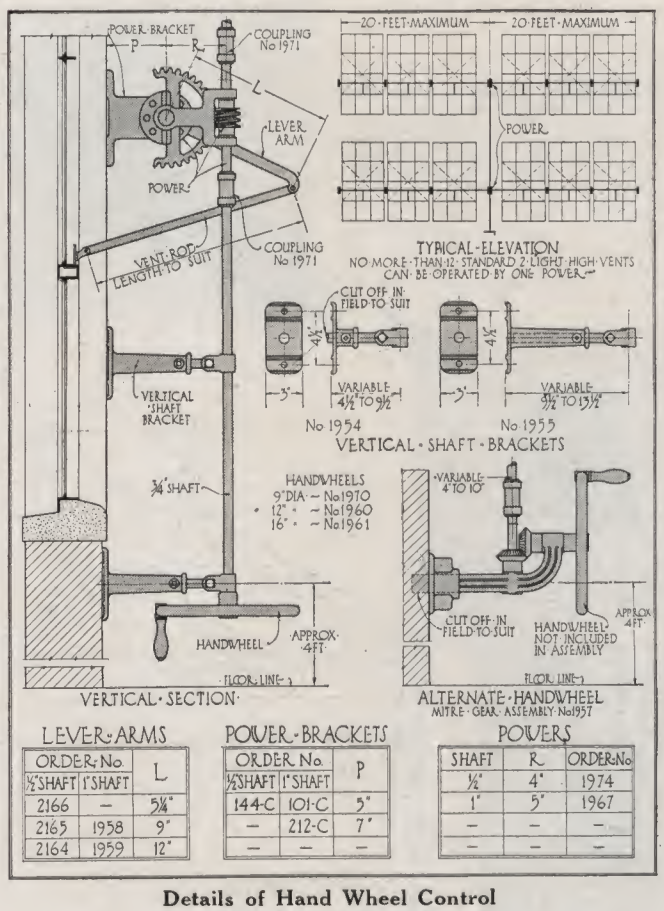
Note: Where building construction makes it impractical to hang the chain directly vertical from the power (as in monitor window installations) single and double chain idlers may be specified (at added cost).

9. *Steel Shaft Operation*—Power shall be operated by a vertical ¾ in. round, cold rolled steel shaft, coupled directly to the worm shaft with a malleable iron coupling. The shaft shall be supported by adjustable malleable iron brackets spaced not over 6 ft. apart, one bracket always being placed at the lower end of the shaft, approximately 4 ft. above the floor.

Note: Lower end of shaft may be terminated in either one of two ways, specify which.

10a. *(Wheel in horizontal plane.)* A gray iron hand wheel and handle shall be mounted on the lower end of the shaft.

10b. *(Wheel in vertical plane.)* The shaft shall be directly



LEVER · ARMS

ORDER · No ½" SHAFT	ORDER · No 1" SHAFT	L
2166	–	5¼"
2165	1958	9"
2164	1959	12"

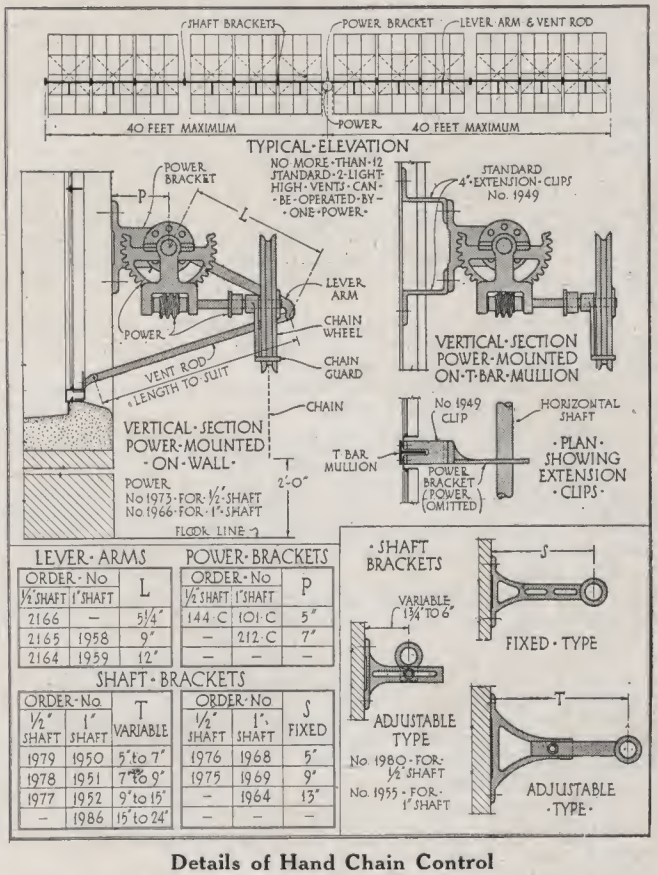
POWER · BRACKETS

ORDER · No ½" SHAFT	ORDER · No 1" SHAFT	P
144-C	101-C	5"
–	212-C	7"
–	–	–

POWERS

SHAFT	R	ORDER · No
½"	4"	1974
1"	5"	1967
–	–	–
–	–	–

Details of Hand Wheel Control
Scale ¾ in. = 1 ft. 0 in.



LEVER · ARMS

ORDER · No ½" SHAFT	ORDER · No 1" SHAFT	L
2166	–	5¼"
2165	1958	9"
2164	1959	12"

POWER · BRACKETS

ORDER · No ½" SHAFT	ORDER · No 1" SHAFT	P
144-C	101-C	5"
–	212-C	7"
–	–	–

SHAFT · BRACKETS

ORDER · No ½" SHAFT	ORDER · No 1" SHAFT	T VARIABLE
1979	1950	5' to 7'
1978	1951	7' to 9'
1977	1952	9' to 15'
–	1986	15' to 24'

ORDER · No ½" SHAFT	ORDER · No 1" SHAFT	S FIXED
1976	1968	5"
1975	1969	9"
–	1964	13"
–	–	–

· SHAFT BRACKETS
VARIABLE 1¾" TO 6"
FIXED · TYPE
ADJUSTABLE TYPE
No 1980 · FOR · ½" SHAFT
No 1955 · FOR · 1" SHAFT
ADJUSTABLE · TYPE ·

Details of Hand Chain Control
Scale ¾ in. = 1 ft. 0 in.

Continued on next page

connected by a malleable iron coupling to a pair of miter gears of cut machine steel assembled with a gray iron hand wheel and handle on an adjustable malleable iron bracket.

Note: When specified a gray cast iron housing is furnished for the miter gears at added cost.

Note: Where building construction makes it necessary, universal joints for the vertical shaft may be specified (at added cost). The angle between two adjacent lengths of shaft must not be less than 135°.

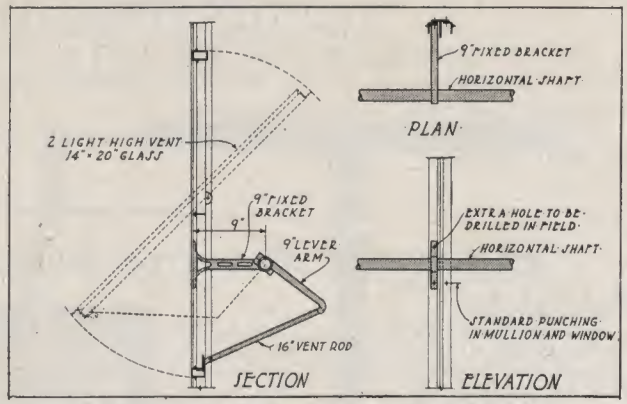
Erection

11. All operating devices shall be erected and adjusted to proper working order by the window contractor.

Painting

12. All operating devices shall have one coat of manufacturer's standard, dark gray paint, oven dried and applied before shipment.

Note: The following should be provided for in the paint specifications—one coat of red lead and oil should be applied after erection followed by one or more coats of finishing paint as required.



Application to Center Pivoted Steel Windows
Scale ½" = 1' 0"

LUPTON RACK AND PINION OPERATING DEVICE

Similar in construction to the Lupton Torsion Type Operating Device, described on page 64 the Lupton Rack and Pinion Operator will operate a larger number of vents on longer runs than the torsion operator. Three types of power units are available to meet varying requirements. Motor operation can be provided if desired or power may be enclosed in an oil tight case.

SPECIFICATION FOR LUPTON PIVOTED WINDOW OPERATOR—RACK AND PINION TYPE

Work Included

1. Furnish and install where shown on drawings Rack and Pinion Type Operating Device, manufactured by David Lupton's Sons Co., Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate for the architect's approval complete shop drawings. These shall show scaled details of construction, etc.

Materials and Construction

3. Power—

Note: There are three types of powers as follows:

3(a). Power shall be a worm and gear having a 40 to 1 ratio. Worm to be cut from steel, worm wheel to be cast iron with cast teeth and fastened to the horizontal shaft with two set screws. Worm and wheel shall be held in mesh by a cast iron yoke.

3(b). Power shall be a worm and gear having a 26 to 1 ratio. Worm to be cut from steel and provided with a thrust bushing. Worm wheel to be cast steel with cut teeth and fastened to the horizontal shaft with two ¼ in. diameter steel pins. Both worm and gear shall be enclosed in an oil tight case.

3(c). Power shall be a worm and gear having a 60 to 1 ratio. Worm to be cut from steel and to be provided with two Nice ball bearings. Worm wheel to be cast iron with cut teeth and attached to horizontal shaft with two ⅜ in. diameter steel pins. Worm and wheel shall be enclosed in an oil tight cast iron case.

4. Power shall be mounted on a malleable iron bracket adapted to rigid attachment to building construction or by means of clips to window mullion.

5 and **6. Power Shaft**—See specification for Lupton Operating Device—paragraphs 4 and 5.

Note: ½ in. pipe is not used for the rack and pinion operator. In addition to the 1 in. standard pipe, 1 in. extra heavy and 1 in. double extra heavy pipe may be used.

7. One rack and pinion shall be provided for each ventilator. Rack shall be of 1x⅜ in. steel channel punched with slots to mesh with a malleable iron pinion clamped with one bolt to the horizontal shaft so tightly as to withstand a pull of 300 lb. on a 2 in. radius.

8. Rack and pinion shall be held in mesh by two 12 gauge steel yokes with two brass bushed steel rollers.

9. Rack shall be—

Note: Racks may be straight or curved and may be attached at top or bottom of center pivoted ventilators. Specify type and where attached.

10. A malleable iron hinge shall be provided for attaching the rack to the ventilator. Hinge shall be adjustable so that all vents may fit tight when closed.

11 to **14. Operation**—

Note: For operation see Lupton Operating Device Specification paragraphs 8 to 10b inclusive (page 64).

Note: Power described under paragraph 3(c) may be operated by motor, specify as follows:

15. Power shall be operated by a motor bolted to the base of power and geared to power with a spur gear. Limit switch shall be attached to power. Push button with open, closed and stop buttons and a motor control panel as well as limit switch shall be furnished by manufacturer of operator.

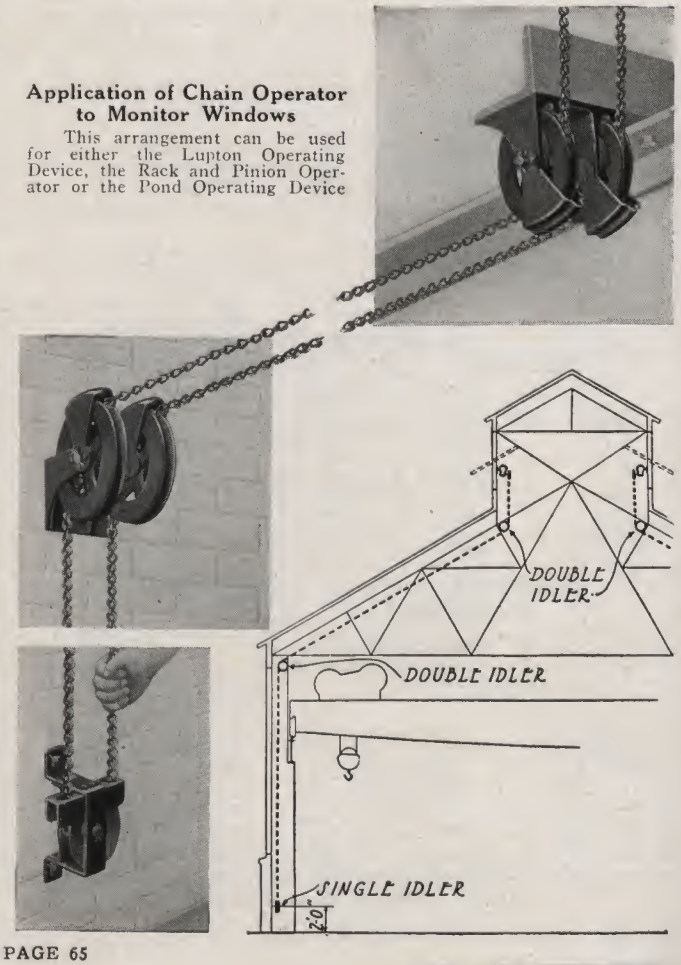
Note: Conduit wiring and line switch are to be furnished by the electrical contractor. See "Electrical Construction" under specification for Pond Operating Device Lupton page 74.

Erection

Note: See Specification for Lupton Operating Device page 64.

Painting

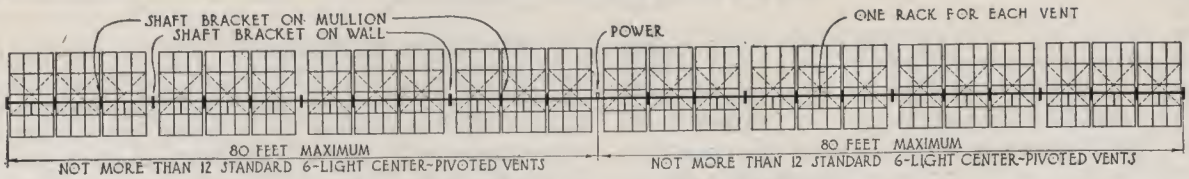
Note: See Specification for Lupton Operating Device page 64.



Application of Chain Operator to Monitor Windows

This arrangement can be used for either the Lupton Operating Device, the Rack and Pinion Operator or the Pond Operating Device

Continued on next page

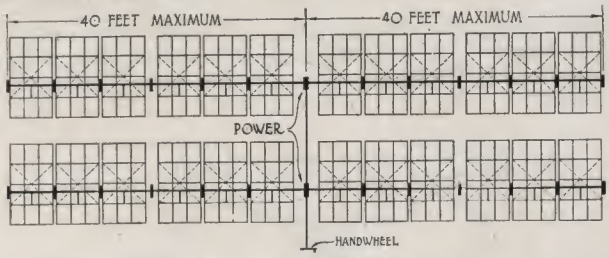


ELEVATION OF TYPICAL HAND CHAIN OPERATION

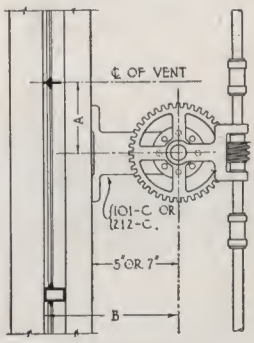
LIMITS

CENTER PIVOTED (VENTS PIVOTED 2" ABOVE CENTER)
NOT OVER 24 STANDARD VENTILATORS · SEE DIAGRAMS

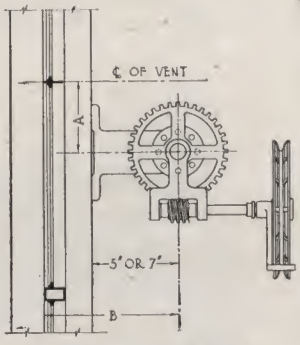
TOP PIVOTED (VENTS PIVOTED 4" BELOW TOP)
LIMITS ARE ½ THOSE SHOWN FOR CENTER PIVOTED



TYPICAL ELEVATION OF MULTIPLE BANK HANDWHEEL OPERATION



HANDWHEEL OPERATION



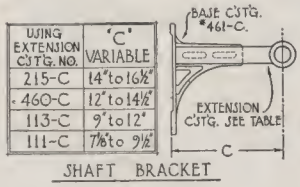
HAND CHAIN OPERATION

POWERS WITH FULL WORM GEAR

VERTICAL SHAFT & HANDWHEEL SAME AS FOR L.O.D.
SCALE ¾"—1'-0"

NOTE POWERS ARE MOUNTED ON *101-C (5") OR *212-C (7") L.O.D. POWER BRACKETS ATTACHED TO WALL · WHERE POWERS ARE TO BE ATTACHED TO MULLIONS 4-INCH EXTENSION CLIPS *1949 ARE USED, SAME AS FOR L.O.D.

USING EXTENSION C.I.T.G. NO.	"C" VARIABLE
215-C	14" to 16½"
460-C	12" to 14½"
113-C	9" to 12"
111-C	7⅛" to 9½"

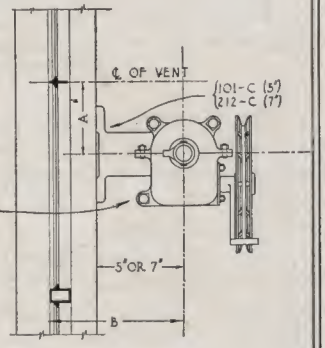


SHAFT BRACKET

TYPE "LA" POWER

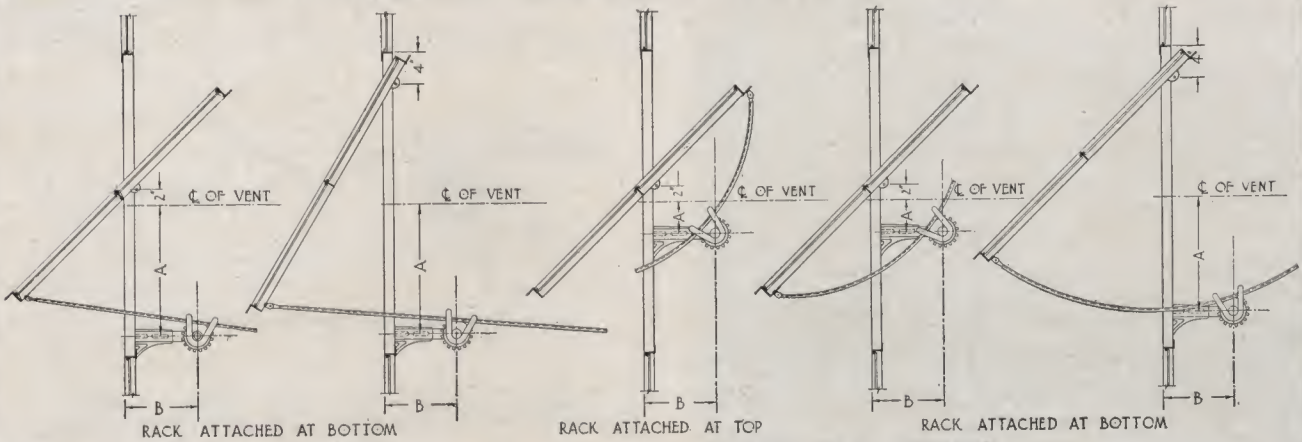
IN OIL TIGHT CASE
HAND CHAIN OPERATION

HAND WHEEL OPERATION USES SAME SHAFT & HANDWHEELS AS LUPTON OPERATING DEVICE
SCALE ¾"—1'-0"



GLASS SIZE	STRAIGHT RACK 60° MAX. OPG. LOCATION OF ℄ OF SHAFT A	B	LENGTH OF RACK CENTER PIVOTED	TOP PIVOTED	CURVED RACK FOR CENTER PIVOTED WINDOWS ~ 60° MAX. OPG. LOCATION OF ℄ OF SHAFT A	B	LENGTH OF RACK I *	II *	CURVED RACK FOR TOP PIVOTED WINDOWS LOCATION OF ℄ OF SHAFT A	B	LENGTH OF RACK (34" RAD)	MAX. OPG.	LENGTH OF RACK (22" RAD)	MAX. OPG.
12" x 18"	15⅜"	9⅜"	28"	38½"	4"	9⅜"	27"	27"	14⅜"	9⅜"	39"	60°	39"	55°
		13⅜"	32"	42½"		13⅜"	27"	31"		13⅜"	43"	60°		
14" x 20"	16⅜"	9⅜"	28"	42½"	4"	9⅜"	27"	27"	15⅜"	9⅜"	43"	60°	43"	55°
		13⅜"	32"	46"		13⅜"	31"	31"		13⅜"	47"	60°		

*I RACK ATTACHED AT TOP OF VENT II RACK ATTACHED AT BOTTOM



STRAIGHT RACK OPERATION

CURVED RACK OPERATION

SCALE	CONSTRUCTION & APPLICATION RACK & PINION OPERATOR LUPTON MECHANICAL OPERATOR	PLATE · NO M ~ 1 AUGUST·1929
AS SHOWN		

Continued on next page

POND ROOF DESIGN

The Pond Roof Design was evolved to supply needed ventilation and daylight to foundries and similar buildings in which heat and gases are produced as a result of manufacturing processes. It corrects the faults of other roof designs, in that it quickly and thoroughly clears any size building of heat, foul air, or smoke. It provides large outlets arranged to receive the ascending air and heat currents with minimum lateral draft. There is no place anywhere within the steep planes of the V-shaped portion for stale air to be pocketed.

Cross-section of Typical Pond Truss Foundry Showing Ventilation Features

While ventilation and lighting are the primary functions of the Pond Roof, it gives maximum weather protection, because it incorporates the use of top hung continuous windows which are in themselves a weather protecting element.

The remarkable efficiency of the Pond Roof Design, both in ventilation and light distribution, has led to its adoption in many manufacturing buildings in various industries, regardless of size. These include automobile, rubber, glass and airplane factories in addition to a great number of foundries and buildings devoted to the metal manufacturing industries.

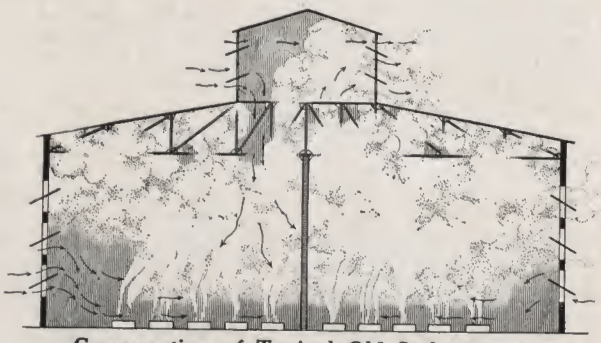
The Ventilation Features—The old style monitor type roof proved faulty in several ways. Its outlets are too small for free discharge of individual heat streams. The center pivoted monitor windows allow rain and snow to blow over them, and cross winds to enter, chilling the warm monitor and causing down drafts. Consequently the windows needed much closing and opening and had no ventilating value except under the most favorable conditions.

Pond Roof Design gives complete ventilation where the monitor failed. It provides for proper relation of fresh air inflow to stale air elimination. Buildings of unusual width are satisfactorily ventilated by the use of several Pond Trusses with a Pond A-Frame located between them. The lower the roof, in a heat producing building, the better. A Pond Roof need not be higher than is required for crane clearance.

Ford Motor Company, Lincoln Division, Detroit, Mich.
ALBERT KAHN, Architect. WALBRIDGE, ALDINGER CO., Contractors

Two large Pond roof designs with an A-frame between them. All hung with Pond Continuous Windows. Each line of window is 842 ft. long and controlled by a single Pond operating device, motor driven. Lupton has equipped Ford plants in Jacksonville, Fla.; Norfolk, Va.; Dallas, Texas; Los Angeles, Cal. and Louisville, Ky.

The Lighting Features—The superiority in the lighting features of the Pond Roof Design is the result of carefully planned construction. The continuous windows in the sides of the truss permit lighting through a wider angle than other roof construction. A portion of light strikes the slopes of the roof, which results in a breaking up of light rays and a more widely spread diffusion of light. The combination of crossing rays



Cross-section of Typical Old Style Foundry

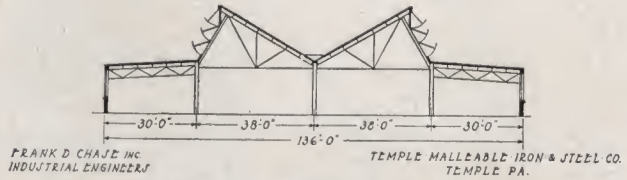
produces an even lighting throughout the entire building.

There is no necessity of locating the building or its roof design in a theoretical position for interior lighting, for the lighting is from practically all sides, hard shadows are absent and workers can see clearly even when facing the window because of the light from behind.

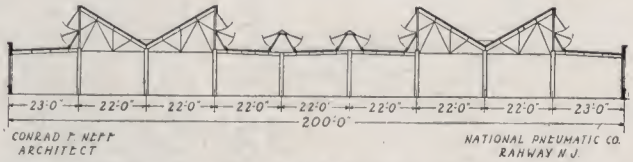
Owing to the light distribution, a Pond Roof requires less glass area than a saw-tooth roof for equally effective lighting, thus saving fuel. Investigations show that added cost of steel for a Pond Roof will be more than offset by a few years' fuel saving.

Fuel losses can be reduced and the average summer temperature decreased by the use of a suitable insulation between the roof slab and weather-proof covering. Exposed cement tile should be avoided.

Pond Roof Design is not a stock design. For its correct and most efficient use, the proportions of Pond Trusses and A-Frames should be worked out for each particular case. Lupton Engineering service is available, to study your problem without obligation, and give our recommendations to insure a better lighted and ventilated building.



Cross-section Showing Pond Truss



Cross-section Showing Two Pond Trusses with Pond A-Frames Between Them. The A-Frames Provide Inlets for Fresh Air in Wide Buildings

Continued on next page

POND CONTINUOUS WINDOWS

These windows are designed for lighting and natural ventilation in roofs of all buildings and for sidewalls of industrial buildings where mass control of ventilation is necessary and desirable. Units can be joined end to end, by means of weatherproof expansion joints, to form a continuous window for openings as long as 1000 feet. Long runs such as this can be operated by a single motor driven Pond Operating Device described on page 73. When the windows are opened, there is formed over the opening a continuous awning of glass and steel that effectively prevents the entrance of rain, thus permitting ventilation in stormy weather. Storm panels are provided at the ends of runs to keep the rain out at these points.

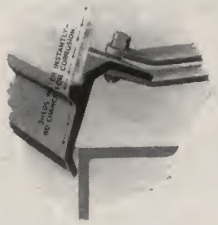
Pond A-Frame in Roof, with Two Lines of Pond Continuous Windows in the Sides
This is one of several uses for this type window

In Roofs—Their most effective use is in the Pond Roof construction described on page 67, for industrial buildings with heat processes. The Pond "A" Frame is the most inexpensive, practical ventilating skylight for roof lighting of other types of buildings. When furnished with Pond Continuous Windows, sawtooth and monitor roofs give the best results of which they are capable.

In Sidewalls—They can be used either in short lengths between pilasters or in long runs hung outside the wall columns.

Operation—Is by Pond Operating Device either hand or motor power. See pages 72-74 for description and details.

Members—Are solid one piece rolled steel sections. The sill member (section 360) is especially designed to shed water even when the window is open. Full size sections are shown on page 71.



Sill Member Section 360

Welded Assembly—At the joints the members are coped and solidly oxy-acetylene welded along the entire length of contact. In this way the maximum strength of each member is utilized and the unit becomes a single rigid piece. There is no possibility of loosening joints with resultant cracked putty and broken glass.

Expansion Joints—Expansion joints are provided between units to allow for unavoidable inaccuracies in building construction and variations in length due to temperature. A section through an expansion joint is shown on page 70. The frame member of one unit (section 326) overlaps the frame member (section 350) of the adjacent unit. The units are held together by an "expansion plate" and bolted as shown.

Sizes of Units and Openings—There are four standard heights of units: 3 ft., 4 ft., 5 ft. and 6 ft. These are overall dimensions. Clear heights of openings, from head girt to sill girt for any unit, are 1½ in. less than the overall height of unit. These heights must be carefully maintained in placing steel work, see details page 70.

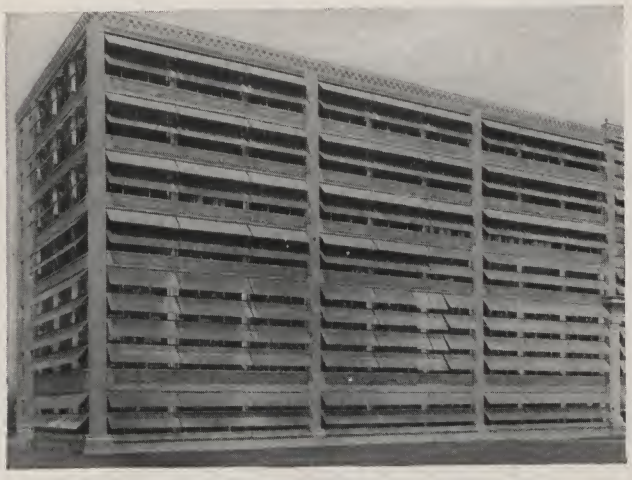
Standard units are 20 ft. long with muntins approximately 2 ft. 0 in. center to center. Shorter length units, 10 ft., 12 ft., 14 ft., 16 ft., 18 ft. long, are used at the ends of runs as needed to suit the openings.

Storm and End Panels—In roofs, combination storm panels are recommended for use with operated lines; with stationary lines short end panels are used. Either type of panel extends 2 ft. beyond the end unit, usually to the approximate center line of a truss.

Dimensions from out to out of these panels are always even feet; no odd feet or inches. To these even feet dimensions must be added not less than 1½ in. at each end (more if desired) for clearance and end flashings. Thus opening lengths are expressed as 84 ft. 3 in., 136 ft. 3 in., etc. Clearances exceeding 1½ in. at each end must be filled out with additional flashing.

In the Side Walls—Between pilasters, special width units and glass are sometimes necessary. The end rails of formed plate (section 326) overlap special plate weathering furnished by us, see details page 70. Width of opening is specified by architect. Weathering is of standard overall width (5½ in.) and is located to project from the masonry from 1½ to 3½ in. This gives an allowable variation of 4 in. in width of unit and saves needless glass cutting.

Weathering is set in pilasters by general contractor before the face brick or concrete is applied. We furnish a sketch showing its location and that of the two holes to be punched by the general contractor in the head girt angle to carry it.



Firestone Tire & Rubber Co., Akron, Ohio, Mechanical Building
OSBORN ENGINEERING CO., Engineers

By using Pond Continuous Windows it is possible to work close to the windows without need of shutting them in case of rain. Every third column breaks the lines of windows. Other columns are spaced on 20 ft. centers and are set inside windows. Upper and lower lines of windows, each 56 ft. long, are connected in pairs and opened simultaneously by Pond Operating Device with hand chains.

Continued on next page

Standard Glass Sizes—Standard glass heights are 3 in. less than the standard or overall heights of the units, i. e.:

No. 3 Unit 3 ft. high.....33 in. glass
No. 4 Unit 4 ft. high.....45 in. glass
No. 5 Unit 5 ft. high.....57 in. glass
No. 6 Unit 6 ft. high.....69 in. glass

Standard lights are 23 and 24 in. wide, these widths being combined as needed to make the desired length of unit.

In ordering glass for replacement, the width and height for each light must be specified.

In ordering new units, only the nominal length of the units need be specified.

Steel Work Required—Structural Steel Work required for the installation of Pond Continuous Windows and Continuous Window Operators, described in the Specifications and shown in the details for these products, is not furnished by Lupton. We furnish drawings showing punching in girt angles for attaching hinges, but the punching is done by the steel contractor.

Clearances Required—Clearances for hinges, overlap at sill, and operators must be strictly maintained. They must be kept free of rivets and other obstructions. All structural steel supporting windows must be straight and true, and must be directly attached to steel columns to avoid faulty alignment due to use of brick walls for support.

All estimates are based on our standard construction as shown in details. Extras will be charged for any special construction necessitated by departure from dimensions and clearances here indicated.

Flashings—All joints in sill and intermediate girt angles, all combination storm panels for operated windows, and short end panels for stationary windows, require flashings as shown by details on pages 70-71.

We do not furnish these flashings; they should be supplied by the sheet metal contractor. We will not be responsible for the weatherproofness of Pond Continuous Windows where flashings are omitted.

Windows between pilasters require special end weathering in jambs which we furnish. See Detail on page 70 for dimensions needed, covering both window and weathering.

Power House Type Windows

Power House Type Windows are made of the same sections as the regular Pond Continuous Windows. The units, however, are shorter than generally used for Pond Continuous Windows and are set one above the other in as many tiers as required for the needed height. The structural steel frame in which the units are set is furnished by Lupton. Glass is held securely by glazing angles, which are continuous along the muntins and vertical side rails.

Both the window and operator usually have to be designed to meet special conditions and therefore a Lupton representative should be consulted for details.

SPECIFICATION FOR POND CONTINUOUS WINDOWS

Work Included

1. Furnish and install where shown on drawings, Pond Continuous Windows, manufactured by David Lupton's Sons Co., Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate for the architect's approval complete shop drawings. These shall show scaled sections of window and frame members, details of construction, anchoring, etc.

Materials

3. Frame Members.

Note: Structural steel members forming frame are not furnished by window contractor. They should be specified under the proper heading elsewhere in the specifications of other trades. The members required are shown on the details and are as follows:

(a) A continuous girt angle at the head, to which the hinges are bolted. This angle should not be smaller than 3x3 in., ¼ in. to ⅜ in. thick. (Punching for hinges is not done by window contractor.)

(b) A continuous member at the sill. The face of this girt (usually an angle or a channel) should be in the same plane as the face of the girt angle at the head.

(c) A continuous girt angle between upper and lower lines of windows where one line is placed directly above the other. This member should be the same size as girt angle at head when windows above and below are both vertical or both sloping, but when windows above are vertical and windows below are sloping, the leg to which hinges for lower windows are bolted, should be at least 4 in. long.

4. Window Sections—Top rail, bottom rail and end rail shall be special hot rolled solid steel sections. Bottom rail shall be patented sill section No. 360.

Overlapping end rail shall be 12 gauge steel plate, formed.

5. Muntins shall be special hot rolled steel T section.

6. Jamb weathering of 12 gauge steel plate, formed, shall be furnished (but not installed) by the window contractor where the window extends between pilasters.

7. Flashings.

Note: Under proper heading elsewhere in specifications of other trades, specify sheet metal flashing at joints of and over gaps between girts, and condensation gutters (where required). These are not furnished by the window manufacturer.

8. Steel Clips shall be furnished for storm panels and stationary windows.

9. Glazing wedges shall be of galvanized pressed steel.

Construction

10. All Pond Continuous Windows shall be designed for outside glazing.

11. All windows shall be straight and true with members in alignment and surfaces in a plane. All joints shall be rigid and tight. Members shall be coped, fitted together and oxy-acetylene welded along their entire length of contact so that their ultimate strength at the juncture will not be decreased.

12. The windows shall be hung on malleable iron hinges with heavy bronze pins.

13. Muntins shall be continuous from top to bottom of window. Joints at top and bottom rails shall be oxy-acetylene welded.

Mechanical Operators

Note: Pond Operating Device for Pond Continuous Windows is covered in another specification.

Erection

14. All Pond Continuous Windows shall be erected in prepared openings by the window contractor. They shall be set plumb and true, properly aligned, securely attached to structural members and properly adjusted before glazing.

Note: (a) Include under the proper heading elsewhere in specifications of other trades, that all structural steel members that come in contact with Pond Continuous Windows shall form straight parallel lines and shall be located, punched and flashed in accordance with the Pond Continuous Window details. Where there is a deflection, structural members shall be straightened in the field by the structural steel contractor before windows are erected.

(b) Include in the masonry specification that all masonry openings shall be accurately constructed in accordance with the Pond Continuous Window details and that all mortar grouting, pointing, etc., shall be done by the mason contractor after windows have been erected.

Painting

15. All Pond Continuous Windows shall receive one shop coat of window manufacturer's standard, dark gray paint, oven dried.

Continued on next page

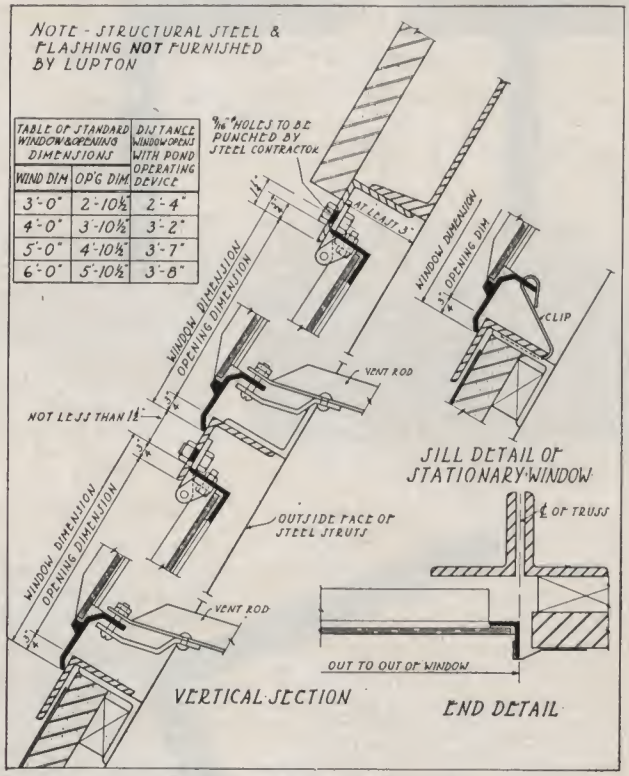
Glass and Glazing

Note: (See also page 1). Glass and Glazing should be included under the proper heading elsewhere in the specifications of other trades.

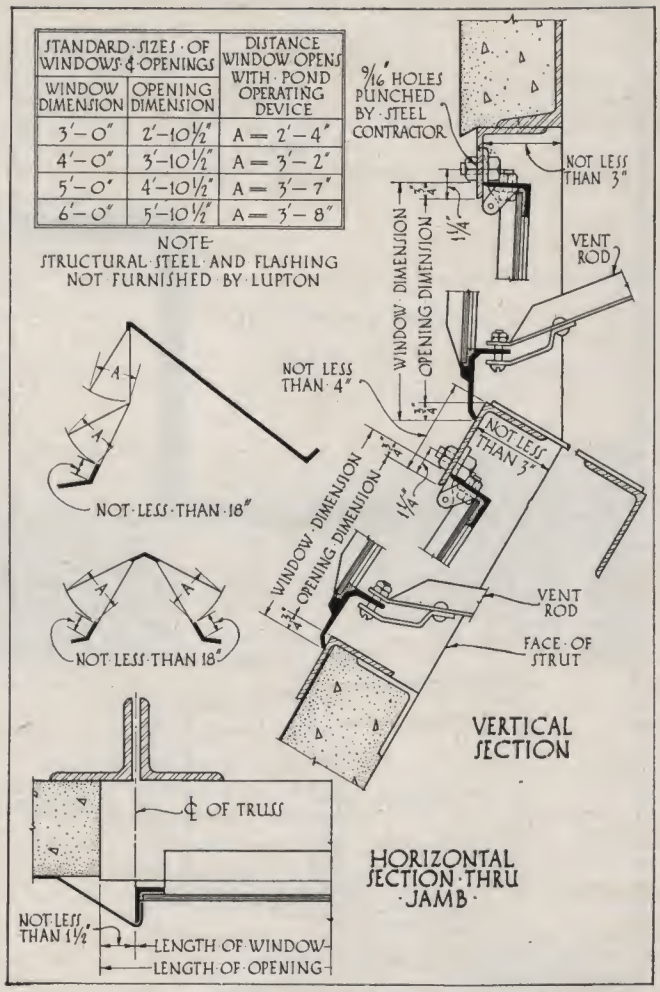
(a) Specify vertical ribbed glass ¼ in. thick. (Ribs to be placed on the side least exposed to dust.)

(b) Specify special P. C. W. putty.

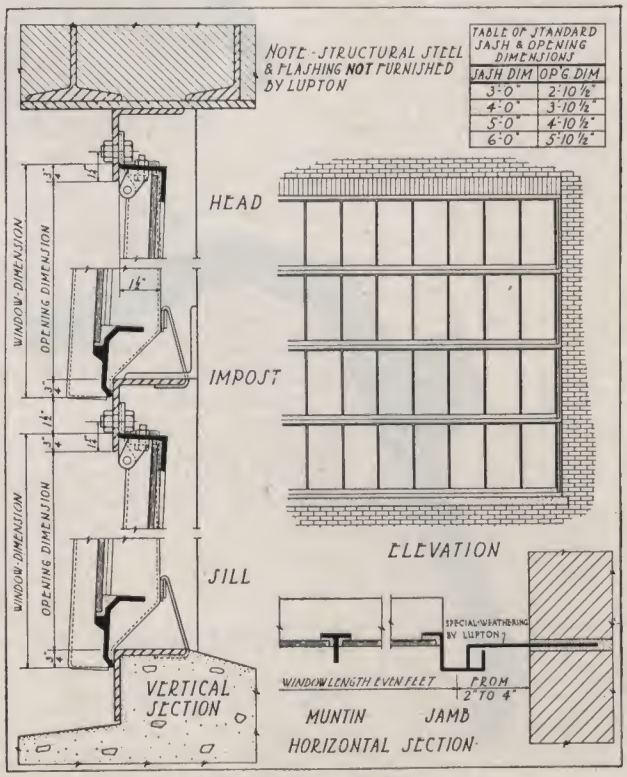
(c) Specify that glass shall be set in a bed of putty and secured by steel glazing wedges supplied by the window manufacturer. Four wedges per light shall be used on windows 3 or 4 ft. high and six wedges per light shall be used on windows 5 or 6 ft. high.



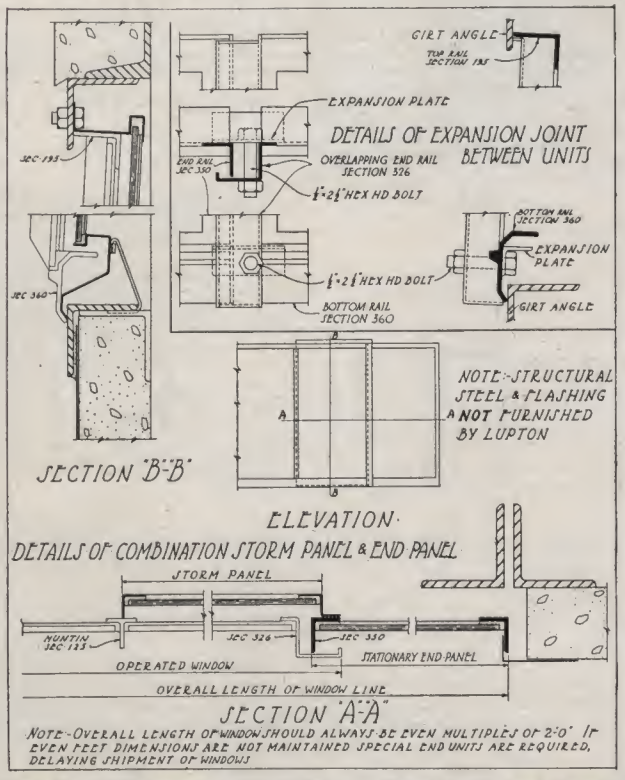
Details of Sloping Windows
Scale 1½" = 1' 0"



Details of Vertical and Sloping Windows
Scale 1½" = 1' 0"



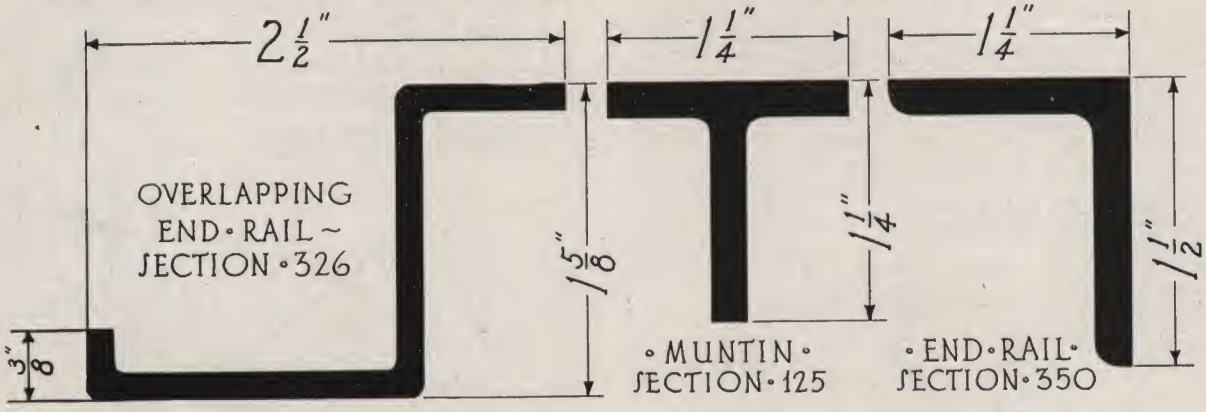
Details of Sidewall Windows
Scale 1½" = 1' 0"



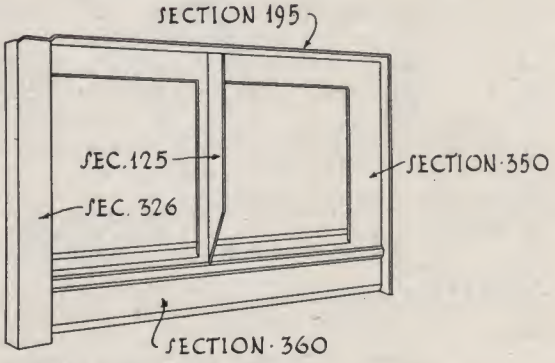
Details of Expansion Joint, Storm Panel and End Panel
Scale 1½" = 1' 0"

Continued on next page

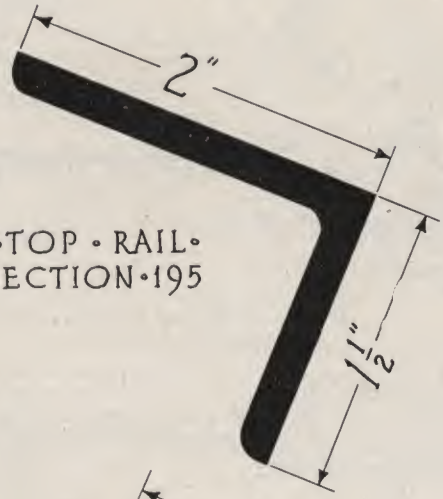
POND • CONTINUOUS • WINDOWS • FULL • SIZE • SECTIONS •



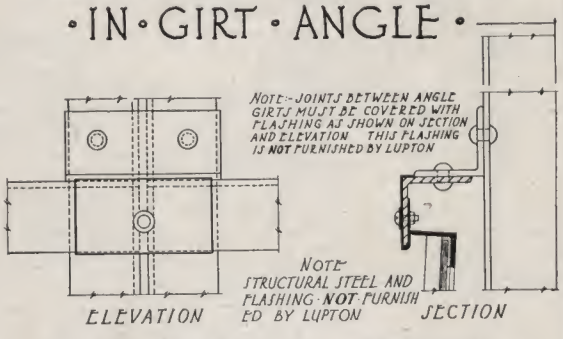
HORIZONTAL • SECTION

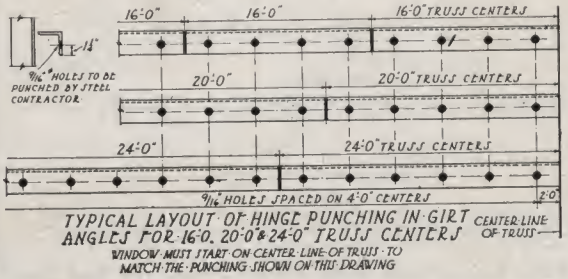


• DIAGRAM • OF • UNIT • VIEWED • FROM • OUTSIDE



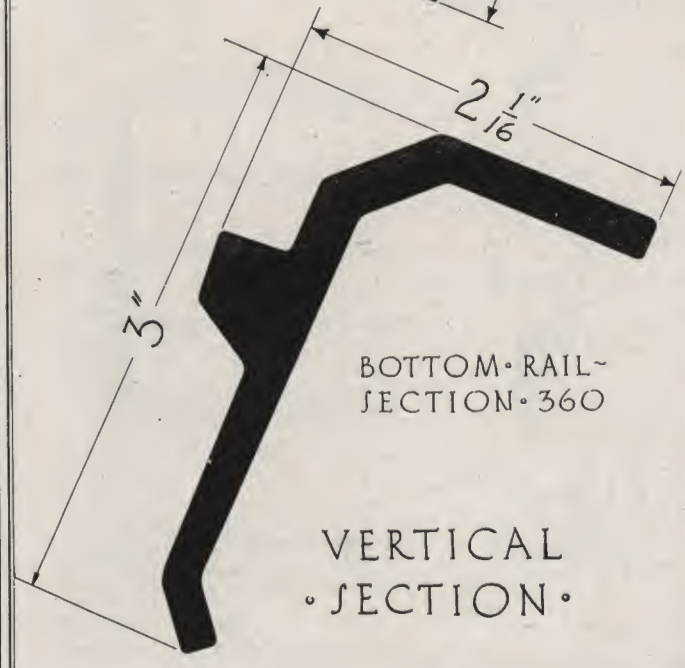
HINGE • PUNCHING • AND FLASHING • OF • JOINT • IN • GIRT • ANGLE •





TYPICAL LAYOUT OF HINGE PUNCHING IN GIRT ANGLES FOR 16'-0, 20'-0 & 24'-0" TRUSS CENTERS

WINDOW MUST START ON CENTER LINE OF TRUSS TO MATCH THE PUNCHING SHOWN ON THIS DRAWING



VERTICAL • SECTION •

Continued on next page

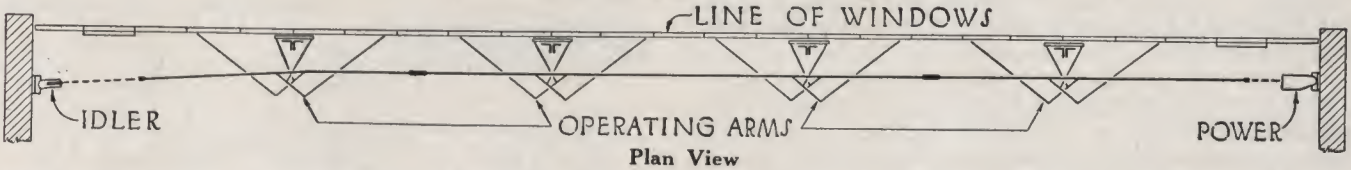
POND OPERATING DEVICE (P.O.D.)

Continuous Window Operator—Tension Type

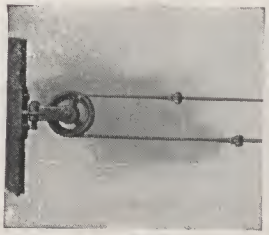
Pond Operating Device is designed on the tension principle of power transmission and is intended primarily to operate long lines of top-hung Pond Continuous Windows.

It is recommended also for simultaneous operation of pivoted windows in installations where the requirements exceed the limit of the Lupton Operating Devices described on pages 64-66.

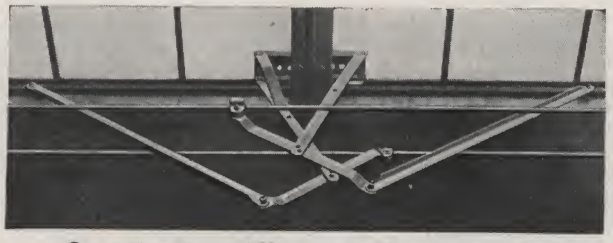
Pond Operating Device can be hand operated or motor driven.



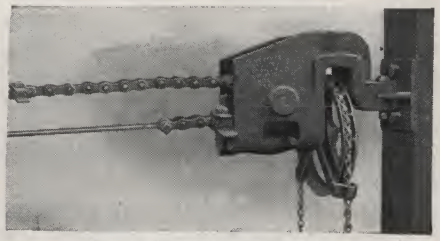
Plan View



Idler

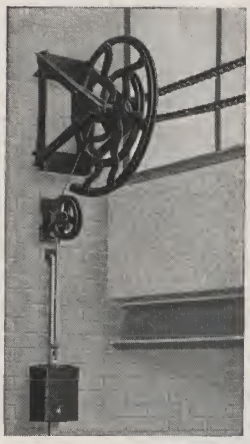


Operating Arms (Window in Closed Position)



Hand Operated Power

Idlers and Spirals



Spiral and Counterweight

The idler pulley is intended for use with hand-operated runs of from 150 to 300 ft. in vertical openings, depending on the height of the unit (150 ft. for 6 ft. units, 300 ft. for 3 ft. units). Such runs on the standard slope of 30 degrees, may be from 100 to 200 ft. long.

The length of these runs can be approximately doubled by using Spirals and Counterweights, and the number of operating powers reduced one-half.

For these long runs, the Spiral is used in place of the idler. The Counterweight is hung on a steel cable which winds on the Spiral. Thus a tension is applied to the transmission rods which balances, approximately one-half the load. A guide is included with the Spiral and Counterweight.

Motor-operated runs of Continuous Windows can also use Spirals and Counterweights. They make the motor load and speed substantially uniform, and prevent excessive overload on starting the motor with the window partly open. For very long motor-operated runs, they should always be used.

Spirals and Counterweights must be specified in bid and order if desired. They should be considered for use in any condition where additional power might be necessary. Spirals and Counterweights are an exclusive feature of Pond Operating Device.

Structural Work Required

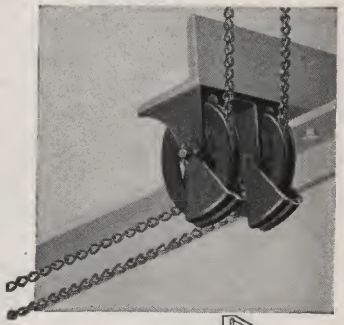
All structural supports for Pond Operating Device are furnished by the structural contractor. This includes supports for the power, and for the compound levers attached to the transmission rods. We furnish detail blueprints as needed.

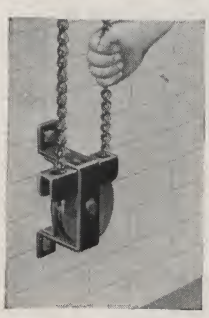
Width of Opening

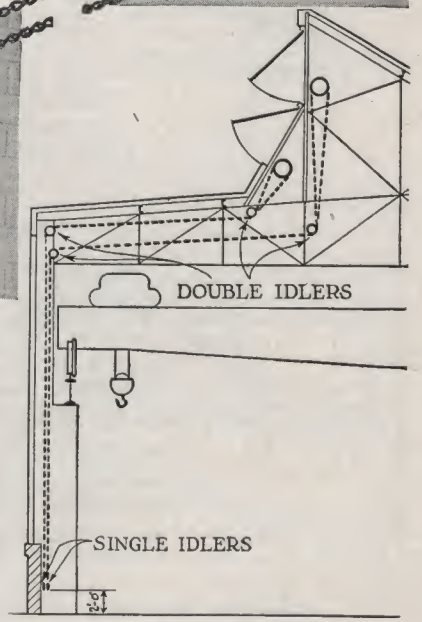
The table below gives openings of Pond Continuous Windows by Pond Operating Device:

3 ft. high top-hung continuous windows 46° or 28 in.
4 ft. high top-hung continuous windows 47° or 38 in.
5 ft. high top-hung continuous windows 42° or 43 in.
6 ft. high top-hung continuous windows 36° or 44 in.

Single and Double Idlers Are Used Where Hand Chain Must Be Operated from a Position Not Directly Under the Power







Continued on next page

Motor Driven Power

Pond Operating Device, Motor Driven, ventilates the large industrial plant with the same precision and completeness as it does the small plant, by co-ordinated, uniform control.

The ideal ventilating result is obtained by operating all the windows by motors, with switches so located that both inlets and outlets may be regulated by the same person, preferably the foreman or shop superintendent. To control the air change or to open or close the windows for any reason then requires only the pushing of a button.

Thus it is possible to combine the efficient organization of the great industrial plant with even more than small-shop facility in ventilation control. If certain bays require separate control, their switchboards can be located accordingly. Sometimes the floor space is divided between different departments having different ventilating requirements. The molding floor, the core departments, and the cleaning floor of a foundry, for example if under one roof, should each have its own window control.

In ventilating large buildings, one of two general purposes obtains. These are:

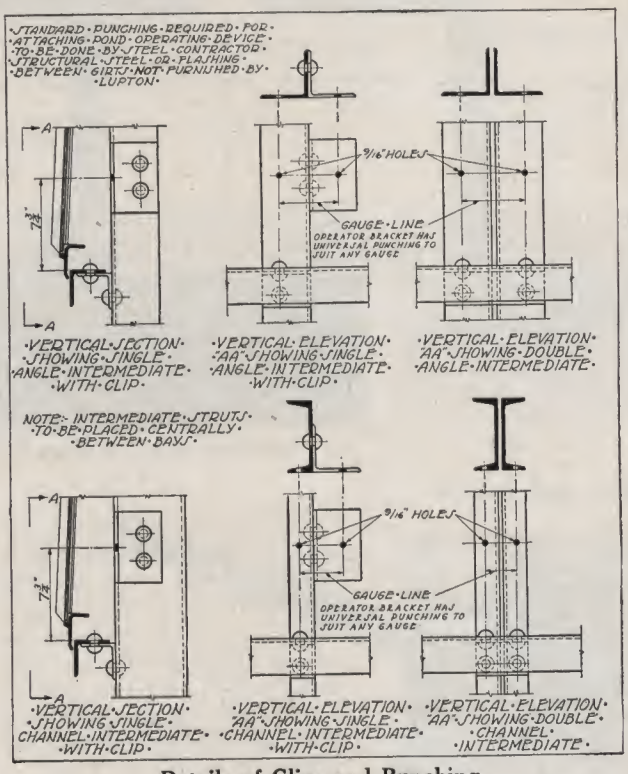
(1) To centralize and make easy the control of windows in buildings of unusual size, where the opening of short runs of windows by hand would take too long and possibly be neglected.

(2) To operate many windows quickly, as in a large foundry in winter, when it is desired to open them for a few minutes to get rid of the smoke without unnecessary loss of heat.

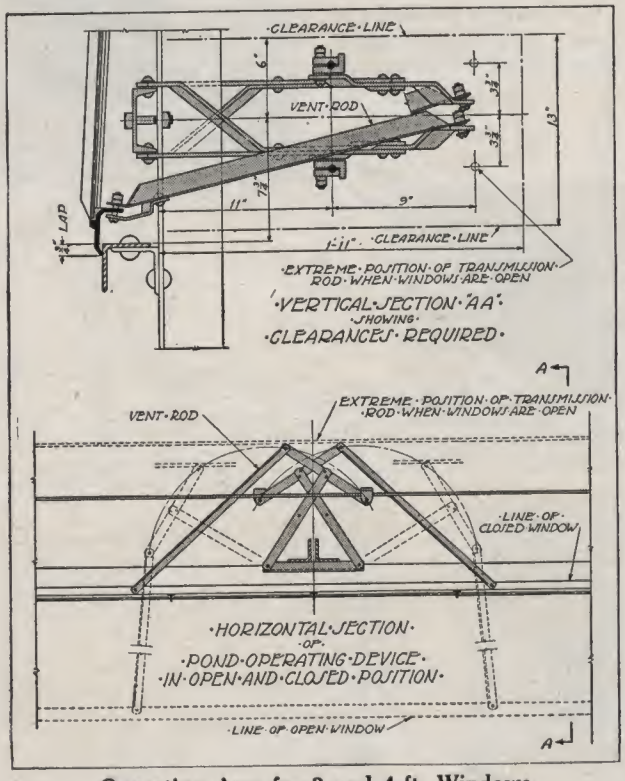
Both of these purposes are satisfactorily accomplished by Pond Operating Device, Motor Driven.

Explosion Type Operator

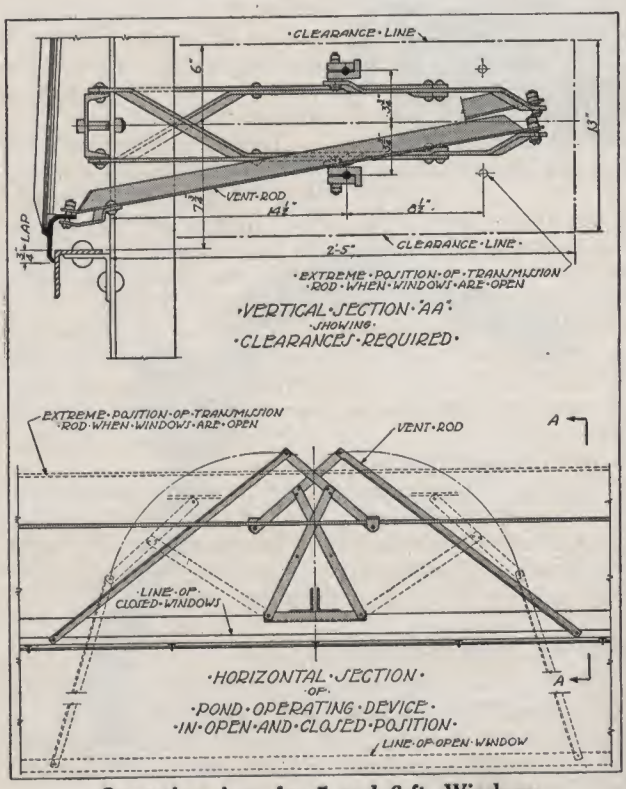
The explosion type operator is for use in chemical or rubber process buildings, granaries or other industrial buildings where explosion hazards are more or less unavoidable. The explosion operators are made in two types to operate Pond Continuous Windows. The counterweighted type can be adjusted to operate automatically at any desired atmospheric pressure. The pressure type operator requires the explosive pressure to open the windows. It is recommended for storage buildings where there are no workmen. Both operators continue to hold windows open after explosion has occurred, allow the poisonous gases and smoke to escape and insure a quick change of air.



Details of Clips and Punching
Scale ¾ in. = 1 ft. 0 in.



Operating Arm for 3 and 4-ft. Windows
Scale 1" = 1' 0"



Operating Arm for 5 and 6-ft. Windows
Scale 1" = 1' 0"

Continued on next page

SPECIFICATION FOR POND OPERATING DEVICE

Work Included

1. Furnish and install where shown on drawings Pond Operating Device, manufactured by DAVID LUPTON'S SONS CO., Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate for the architect's approval complete shop drawings. These shall show scaled details of construction, etc.

Material and Construction

Note: Structural Steel supports for Pond Operating Device are not furnished by the window contractor. These consist of uprights (angles, channels or tees) for attaching the operating arms.

For windows 5 or 6 ft. high the center spacing of the supports should not be less than 7½ ft., nor more than 16 ft.; for windows 3 ft. or 4 ft. high, the spacing should not be less than 6½ ft. nor more than 15 ft. Trusses on 20 ft. centers, with one intermediate usually make the most economical arrangement for steel work.

3. Power—The operating power unit shall consist of a machine cut steel worm shaft mounted in ball-bearings operating a machine cut worm wheel. For manually operated powers the worm wheel shall be a steel casting made integrally with the sprocket wheel. For electrically operated powers the worm wheel shall have a bronze rim with cut teeth. Bearings shall be phosphor bronze. The power unit shall be assembled in a dust-proof, grease packed, cast steel case. The worm shall lock the window in any position.

4. Power Brackets—Power units shall be mounted on brackets made of structural steel angles, trussed to the building construction and designed to withstand the lateral stresses caused by operating the windows.

Transmission Line

5. Transmission line shall consist of 2 lines of solid round steel rods. (*Note:* Specify ½ in. or ¾ in. diameter as required by conditions.) Where joints occur rods shall have the ends hot headed and securely clamped in malleable iron couplings so as to develop the maximum tensile strength of the rods.

6. At the end of the run the two rods shall be connected by a sprocket chain passing over the sprocket wheel in the power unit.

7. Forged steel turnbuckles shall be furnished to adjust the transmission line.

8. The rods shall not be run through guides, rollers or other bearings.

9.

Note: There are two ways of terminating the end of the run opposite the power.

(A) With an idler, (B) With a spiral and counter weight. Specify which one is desired.

(A) At the end of the run opposite the power unit the two rods shall be connected by a ⅝ in. steel wire cable passing over an idler wheel. Bearing in idler shall be phosphor bronze.

(B) At the end of the run opposite the power unit the two rods shall be connected by a sprocket chain passing over a sprocket wheel of steel cast integrally with a spiral. A weight shall be attached to the spiral by means of a steel wire cable in such a way that as the windows open the weight shall exert increasing force on the transmission line and balance a part of the load.

Operating Arms

10. Operating arms shall be mounted in pairs on a 4 in. channel bracket. Bracket shall be rigidly bolted to structural steel supports furnished by others. Arms shall be of flat steel specially constructed to form a rigid T shape and so arranged that all back thrust from the windows shall be transformed into tension in the transmission line.

The stem of the T shall be pivoted to the 4 in. channel bracket. Of the other two extremities of the T, one shall be pivoted to a malleable iron clamp, securely fastened to the transmission rod, and one shall be pivoted to a steel vent rod (of 1¼x1¼x⅛ in. angle) in turn pivoted to the flange of the bottom rail of the window. All bearings in the operating arms shall be phosphor bronze.

Note: Specify either manual or electrical operation.

Manual Operation

11. Manual Operation Power unit shall be operated by a No. 9 Register hand chain passing over a chain wheel mounted on the worm shaft and secured to it by a set screw. Chain shall be guided by a suitable guard.

Note: Where building construction makes it impractical to hang the chain directly vertical from the power (as in monitor window installations) single and double chain idlers may be specified (at added cost).

Electrical Operation

12. Electrical Operation Power shall be operated by an electrical power unit operating a sprocket and silent chain. Sprocket shall be mounted on the worm shaft secured to it by a steel key. Electrical Unit shall be located beneath the power unit and securely bolted to it.

Note: Immediately following this specification include specification for Electrical Equipment.

Erection

13. All operating devices shall be erected and adjusted to proper working order by the window contractor.

Painting

14. All operating devices shall have one coat of manufacturer's standard, dark gray paint, oven dried and applied before shipment.

Note: The following should be provided for in the paint specifications. One coat of red lead and oil should be applied after erection, followed by one or more coats of finishing paint as required.

SPECIFICATION FOR ELECTRICAL EQUIPMENT

Work Included

1. The Operating Device manufacturer shall furnish wiring diagram and complete electrical equipment for Pond Operating Device as hereinafter specified.

Electrical Equipment

2. Motors—Motors shall be of type best adapted to the power equipment, of high torque and ample horsepower.

Note: The motors for Pond Operating Device operate on A. C., 220 or 440 volts, 60 cycle, 3-phase, and are especially wound for high starting torque. They are furnished from stock, which avoids delay. Motors with other current characteristics require from four to six months to deliver.

3. Power Connections—Motors shall be connected to power by means of sprockets and silent chains.

4. Reversing Switches—Standard Magnetic Reversing Switches shall be enclosed in steel boxes and so designed, that the movement of the ventilator either in opening or closing may be stopped or started at any point by manipulation of push buttons.

5. Limit Switches—Limit Switches shall be positive in action and rigidly attached to the power to form an integral part of the power unit. All limit switches shall be enclosed yet accessible for adjustment so as to positively limit the motion of the ventilator in either direction.

6. Push Button Stations—Push Button Stations "open," "close" and "stop" shall be of rugged construction to withstand hard usage. Buttons shall be recessed in cover so that they cannot be accidentally operated.

Electrical Construction

Note: The following provisions should be made in the Electrical Specifications.

The Electrical Contractor shall install magnetic reversing switches and push button stations and shall furnish and install safety type, line switches. He shall also furnish all conduit, fittings and wire and do all wiring between the Electrical Equipment furnished by the Window Operator Manufacturer and that furnished by himself in accordance with the wiring diagram furnished by the Window Operator Manufacturer. All materials and workmanship shall meet the requirements of the National Electric Code and all Local and State Inspection Bureaus.

Conduit shall be galvanized or black enameled, approved by Underwriters' Laboratories, Inc. Wire shall be rubber covered N. E. C. Exposed conduit shall be run in a systematic, sightly manner, paralleled with structural features of the building and rigidly and neatly secured. Where walls are plastered conduit shall be concealed.

The Electrical Contractor shall carry fire, workmen's compensation, and public liability insurance. He shall guarantee his work for a period of one year after completion. Defects in the work and material furnished by him developing during the above named period shall be promptly and satisfactorily made good at his expense.

Continued on next page

LUPTON STEEL INDUSTRIAL DOORS

For all industrial purposes such as the inside and outside doors of factories, mills, power houses, warehouses, docks, locomotive and car shops, these steel doors are ideal. The frame work is of seamless steel tubing, welded at the corners to give greater strength and rigidity and prevent the entrance of moisture. Sizes, details of construction and hardware are shown on plates R-1 to R-5 inclusive.

SPECIFICATION FOR LUPTON STEEL INDUSTRIAL DOORS

Work Included

1. Furnish and install where shown on drawings Steel Industrial Doors, manufactured by David Lupton's Sons Co., Philadelphia, Pa.

Shop Drawings

2. Submit in triplicate for the architect's approval complete shop drawings. These shall show scaled details of construction, etc.

Material and Construction

3. Frames—

Note: Frames are furnished for swing doors only, and only when specified.

Frames for swing doors shall be made of 4 in. structural channel. Top corners shall be bolted together by means of clips. Jambs to be braced at bottom by structural angles to preserve square lines of frame during shipment.

4. Doors made of 1½x2⅝ in. tube shall have 1½x½ in. structural channel stops at head and jambs.

Doors of larger tubing shall have stops of 1½x½ in. channel at head and of 1½x1½ in. structural angle at jambs. Stops shall be attached to frames with round head drive screws not over 9 in. on centers.

5. Anchors of $\frac{3}{16}$ in. steel plate bent in Z shape shall be attached to jambs of frame not over 3 ft. 0 in. on centers.

6. Doors up to and including those 10 ft. 0 in. in height shall have rails and stiles of 1½x2⅝ in. x 14 gauge welded steel tubing.

7. Doors over 10 ft. 0 in. in height shall have rails and stiles of 3x2 in. x 14 gauge welded steel tubing.

8. Rails and stiles shall be mitered at corners—welded and ground flush.

9. All doors shall have a 14 gauge steel panel insert in the lower part of the door and standard rolled steel window glazing panel in the upper portion, both panels to be attached to the rails and stiles by sheet metal screws.

10. Astragals for double doors shall be 14 gauge steel plate.

Hardware

11. Hinges for swing doors made of 1½x2⅝ in. tube shall be Stanley ball bearing butts. Three hinges for doors up to and including those 8 ft. 0 in. high, four hinges for doors over 8 ft. 0 in. high.

12. Hinges for swing doors made of 3x2 tube shall be Allith-Prouty strap hinges. Three per leaf.

13. Track, track brackets and roller bearing trolleys shall be furnished for slide doors.

Note: Locks, bolts, latches, door stops and stay rollers should be listed here if required. See plates R-4 and R-5.

Butt Hinges and Locks are manufactured by Stanley Hardware Co. Other hardware is manufactured by Allith-Prouty Co. All hardware where ever possible is fitted in the factory and shipped unattached, except in the case of single hinged doors with frames where frame, door and hinges are shipped assembled together.

Erection

14. Lupton Steel Industrial Doors shall be erected by (state by whom) in accordance with details furnished by door manufacturer. Frames for swing doors shall be set plumb and square and securely anchored to the building construction. Slide doors shall be hung from tracks securely fastened to building construction. They shall be adjusted to give satisfactory operation. Hardware shall be applied according to door manufacturer's directions.

Note: Where slide doors are hung outside an exterior wall flashing is required. This flashing is not supplied by Lupton.

Painting

15. All doors shall receive one shop coat of door manufacturer's dark gray paint, oven dried.

Note: See page 1.

Glass and Glazing

16. Glazing stops of ½x$\frac{5}{16}$ in. rolled steel angle section shall be furnished, shipped attached.

Note: (See also page 1.) Specify glass and glazing under proper heading elsewhere in specifications.

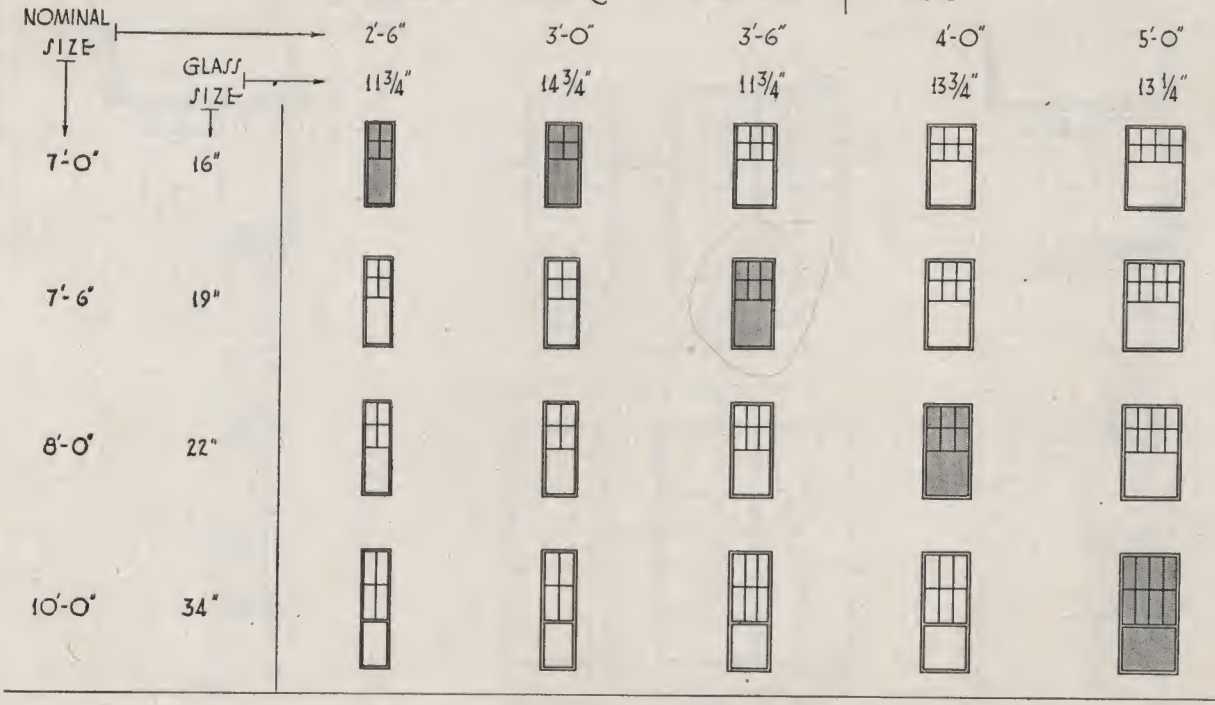
(a) Do not specify single thickness glass.

(b) Specify high-grade steel window putty (ordinary wood sash putty must not be used).

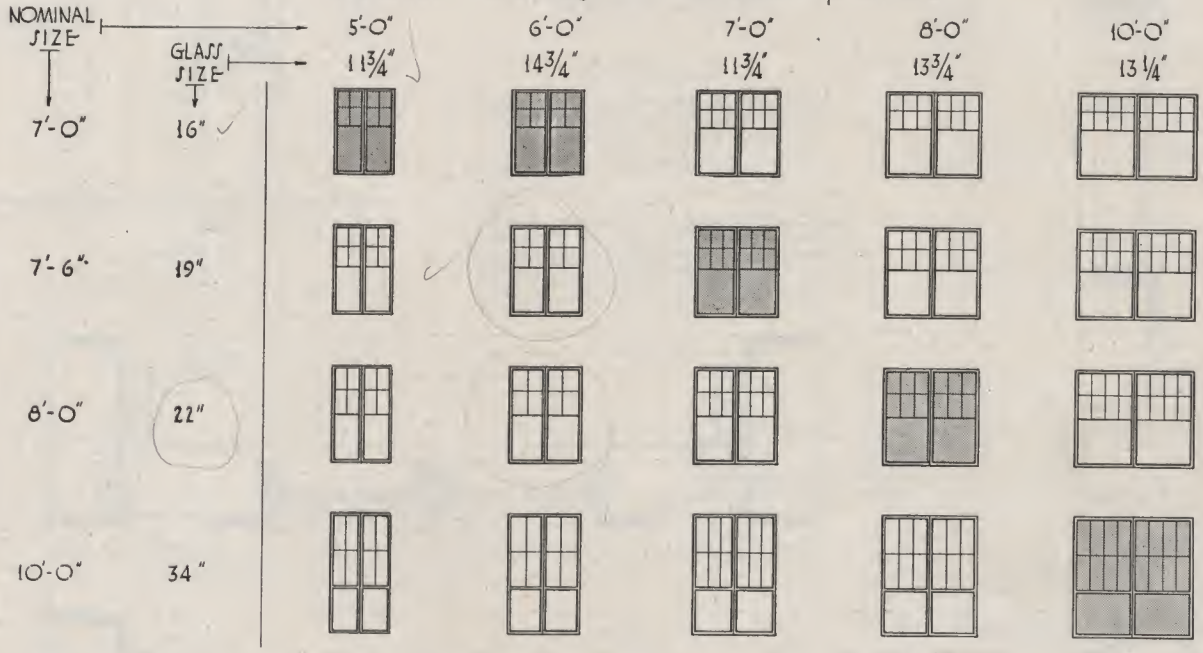
(c) Specify that Lupton Steel Industrial Doors shall be glazed from the inside; that the glass shall be set in a bed of putty and held by Lupton Glazing angle-stops.

Continued on next page

SINGLE DOORS ~ SWING & SLIDE



DOUBLE DOORS ~ SWING & SLIDE



Dealer Stock—Doors shown shaded are dealer stock doors.

Dimensions—Door leaf units may be used interchangeably as swing or slide doors. Nominal sizes are based on the opening dimensions for swing doors. Opening dimensions for slide doors are 3 in. less in width, and 1½ in. less in height to provide standard overlap at head and jamb. See details on plate R-3.

Ordering—Size and design must be exactly as shown in the diagrams above, otherwise the door is special.

Specify hand and swing of door. See diagrams on plates R-2 and R-3.

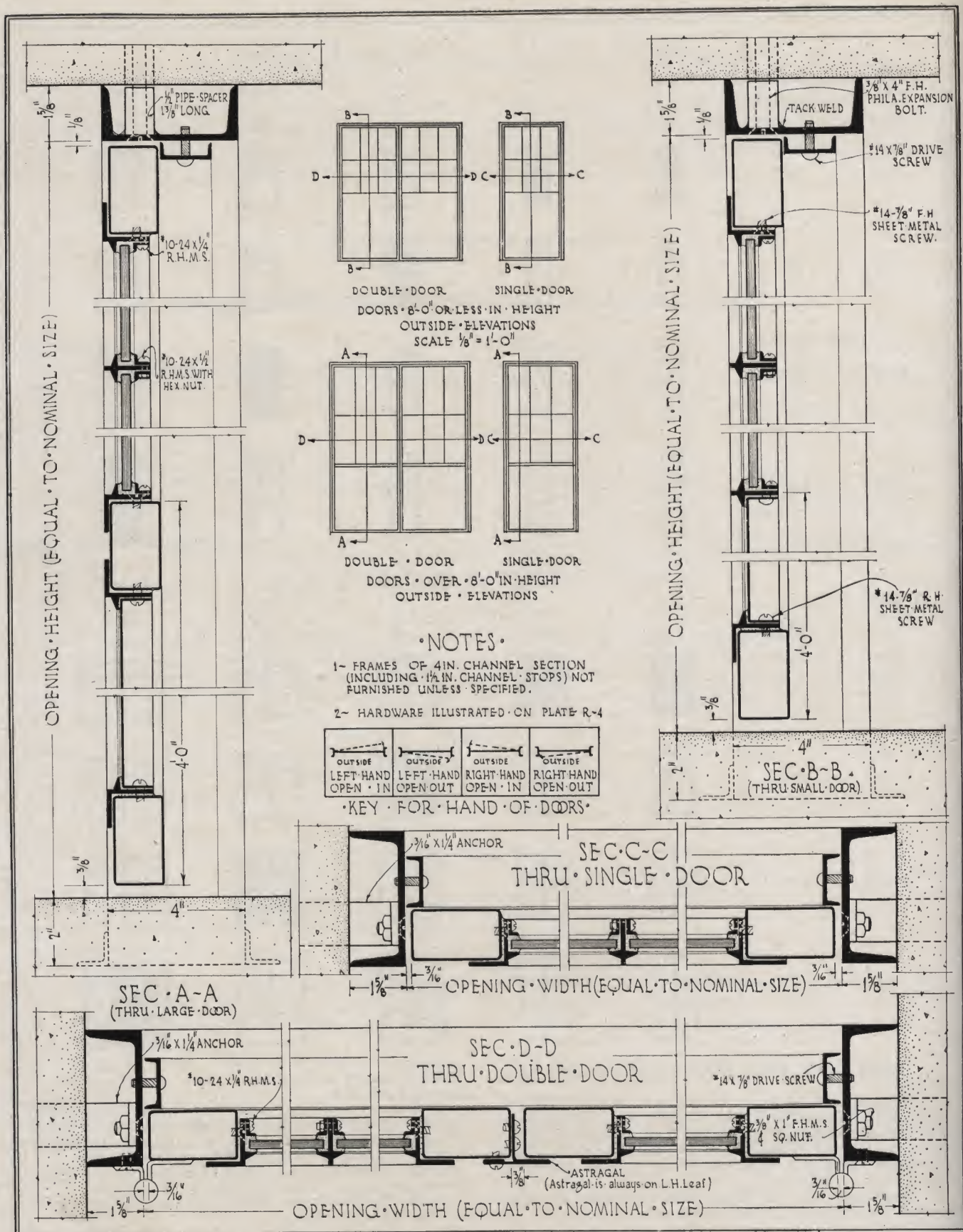
Hinges or Trolleys, Tracks and Track Brackets are included with doors. Other hardware must be specified, if required. See plates R-4 and R-5. Frames for hinged doors are not included with the doors, unless specified.

Glass—Orders for doors do not include glass or glazing. Glazing angles are furnished, shipped attached.

Large Doors—Doors, larger than those shown above, are made of larger tubing.

NOT TO SCALE	LUPTON STEEL INDUSTRIAL DOORS STANDARD TYPES & SIZES	PLATE NO R-1 AUGUST 1929.

Continued on next page

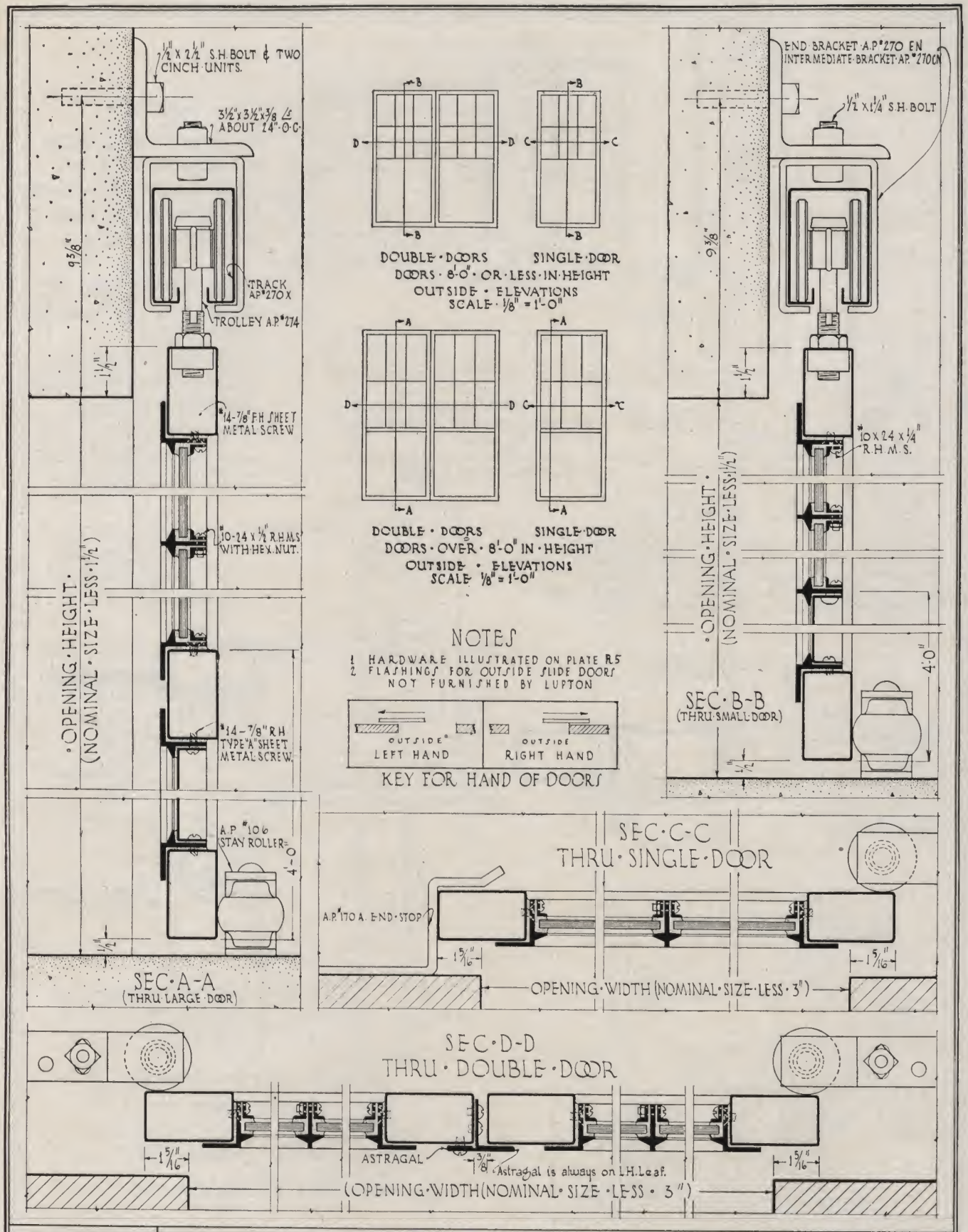


SCALE FOR DETAILS 3" = 1'-0"

LUPTON STEEL INDUSTRIAL DOORS
DETAILS OF SWING TYPE

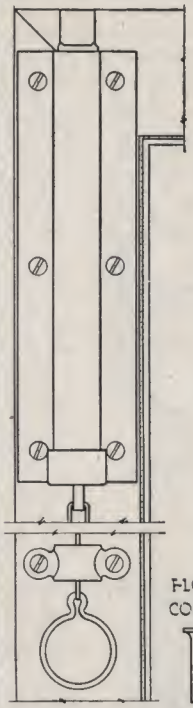
PLATE NO. R-2
AUGUST 1929

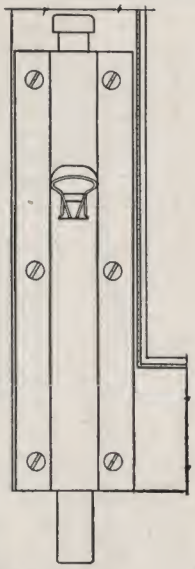
Continued on next page



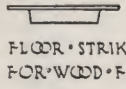
SCALE FOR DETAILS 3" = 1'-0"	• LUPTON • STEEL • INDUSTRIAL • DOORS • DETAILS • OF • SLIDE • TYPE	PLATE • NO. R-3 AUGUST • 1929

Continued on next page





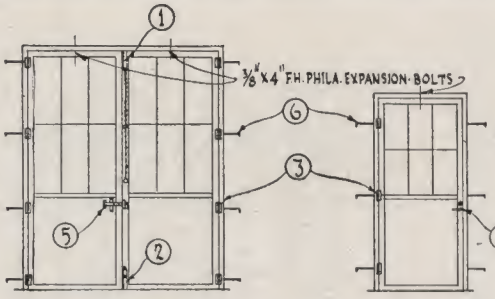
FLOOR · STRIKE · FOR CONCRETE · FLOORS



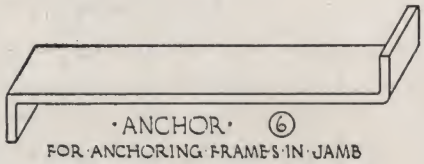
FLOOR · STRIKE FOR · WOOD · FLOORS

TOP · BOLT ①
FOR · DOUBLE · DOORS
WROUGHT · STEEL
STANLEY · NO. 1055 J.
(BLACK · JAPANED · FINISH)

BOTTOM · BOLT ②
FOR · DOUBLE · DOORS · WROUGHT-
STEEL · STANLEY · NO. 1057 J. WITH
STRIKES FOR WOOD & CONCRETE · FLOORS ·
(BLACK · JAPANED · FINISH)



DOUBLE · DOORS SINGLE · DOOR
INSIDE · ELEVATIONS



· ANCHOR · ⑥
FOR · ANCHORING · FRAMES · IN · JAMB
6 · ANCHORS · ARE · FURNISHED · FOR · DOORS
UP · TO · 8'-0" · IN · HEIGHT ·
8 · ANCHORS · ARE · FURNISHED · FOR ·
DOORS · OVER · 8'-0" · IN · HEIGHT ·

~NOTES~

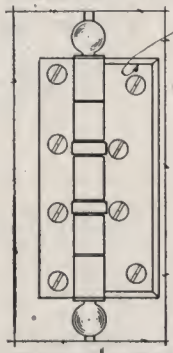
1 - HINGES · FOR · SWING · DOORS ARE · INCLUDED · WITH · THE DOORS · ALL · OTHER · HARDWARE FOR · SWING · DOORS · MUST · BE · SPECIFIED · ON · ORDER · IF · WANTED.

2 ~ WHEN · DOOR · FRAMES · ARE · SPECIFIED · ON · ORDER · ANCHORS ARE · INCLUDED

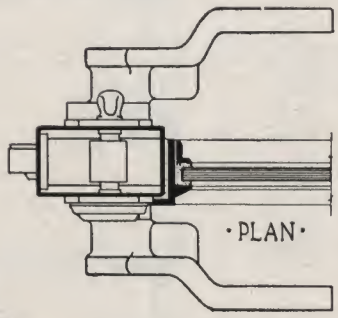
4 ~ WHEN · PANIC · HARDWARE · IS SPECIFIED · VON - DUPRIN · PANIC HARDWARE · IS · FURNISHED ·

5 - WHEN · DOOR · CHECKS · ARE · SPECIFIED · SARGENT · DOOR CHECKS · ARE · FURNISHED. ·

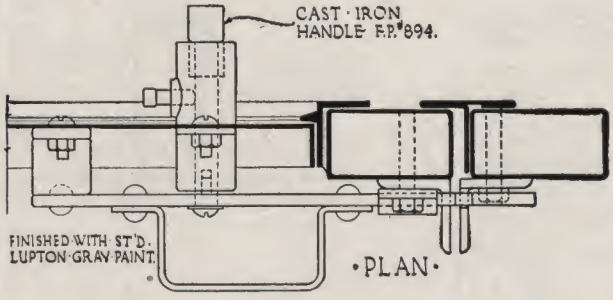
STEEL · BUTT · HINGE



STANLEY · 5" NO. BB 167 ③
3 · REQ. FOR · EACH · LEAF · UP · TO · 8'-0" HIGH.
4 · REQ. FOR · EACH · LEAF · OVER · 8'-0" HIGH.

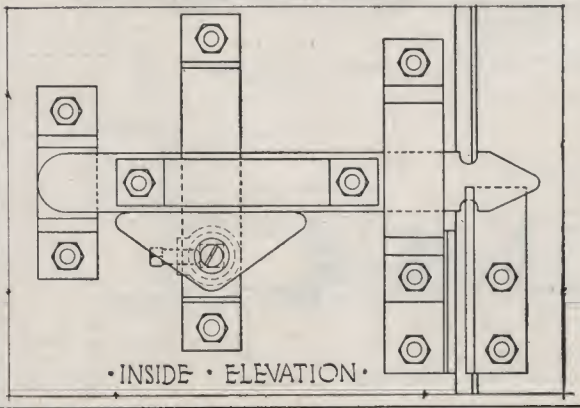


· PLAN ·

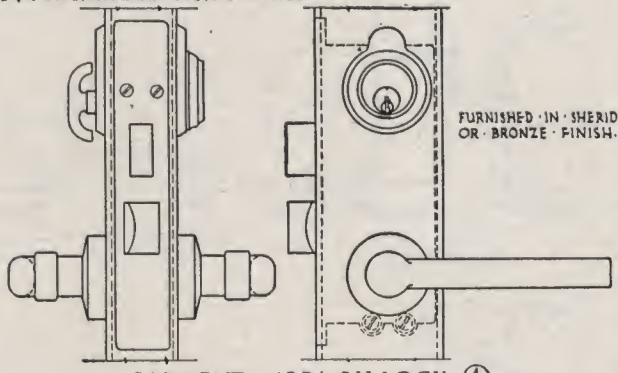


· PLAN ·

FLAT · STEEL · LATCH · ⑤
USED · AS · ALTERNATE · TO · SARGENT 1954 P.H. LOCK FOR SINGLE OR DOUBLE DOORS



· INSIDE · ELEVATION ·

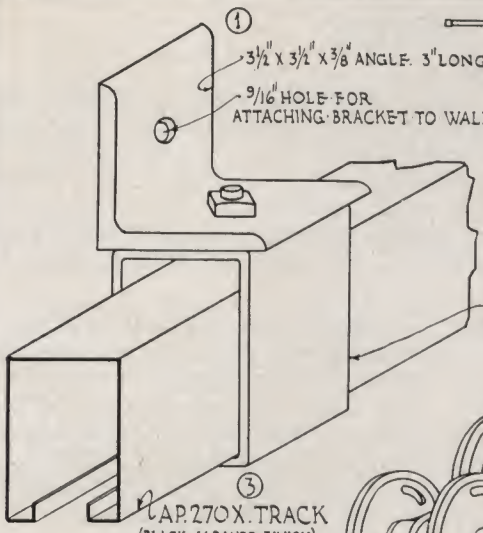


SARGENT · 1954 · P.H. LOCK ④

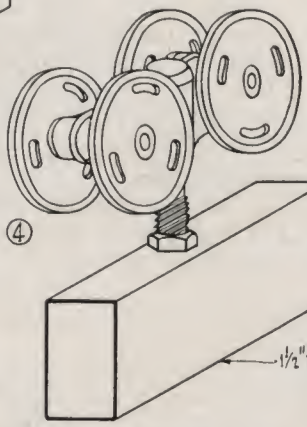
SHOWN · WITH · ONE · CYLINDER · AND THUMB · LATCH
CAN · BE · FURNISHED · WITH · TWO · CYLINDERS ·
WHEN · SPECIFIED · CYLINDERS · CAN BE MASTER · KEYED.
FOR · DOUBLE · OR · SINGLE · DOORS.

SCALE FOR DETAILS 3' = 1'-0"	· LUPTON · INDUSTRIAL · STEEL · DOORS · · HARDWARE · FOR · SWING · TYPE ·	PLATE · NO R · 4 AUGUST · 1929

Continued on next page

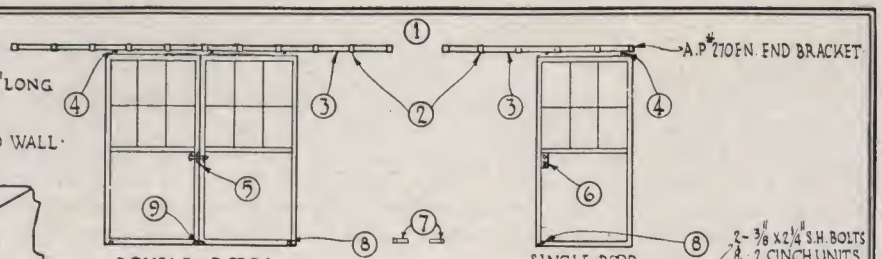


AP.270X. TRACK
(BLACK JAPANED FINISH)

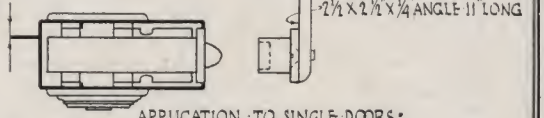


TROLLEY · A.P.*274 ④
(BLACK JAPANED FINISH)

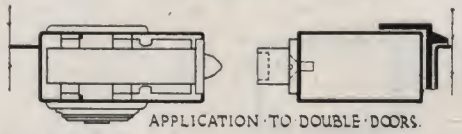
NOTE
TROLLEYS, TRACKS AND BRACKETS ARE INCLUDED WITH THE DOOR. ALL OTHER HARDWARE MUST BE SPECIFIED ON ORDER.



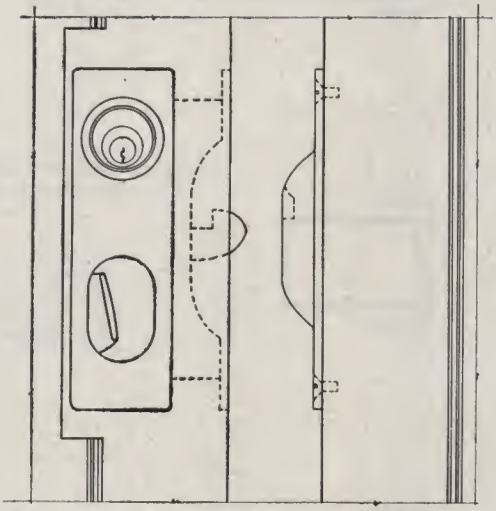
AP.*270CN. INTERMEDIATE BRACKET · (BLACK JAPANED FINISH) ②



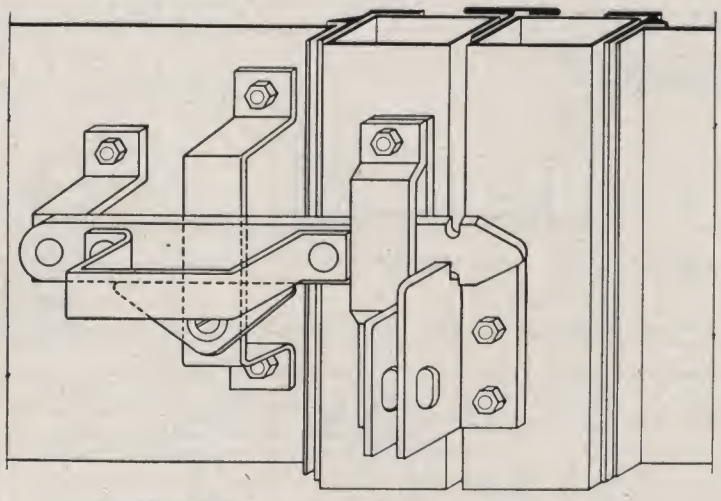
APPLICATION TO SINGLE DOORS



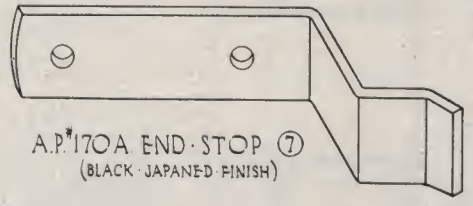
APPLICATION TO DOUBLE DOORS.



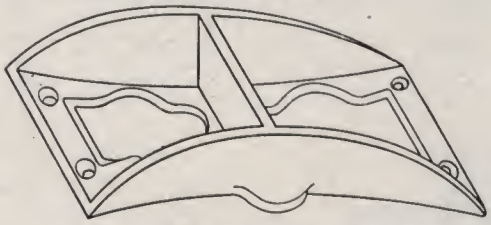
⑥ SARGENT *1924 P.H. CYLINDER LOCK
(BRONZE FINISH)



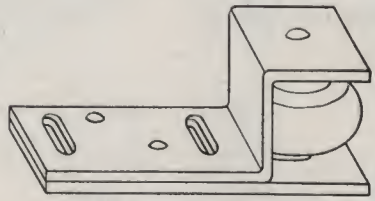
⑤ STANDARD · LATCH * 12
FINISHED WITH LUPTON ST'D. GRAY PAINT



A.P.*170A END STOP ⑦
(BLACK JAPANED FINISH)



A.P.*107 CENTER STOP ⑨
(BLACK JAPANED FINISH)



A.P.*106 STAY ROLLER ⑧
(BLACK JAPANED FINISH)

SCALE FOR DETAILS 3" = 1'-0"	LUPTON · STEEL · INDUSTRIAL · DOORS · HARDWARE · FOR · SLIDE · TYPE ·	PLATE · NO · R-5 AUGUST · 1929

Continued on next page

AIRPLANE HANGAR DOORS

Backed by many years successful experience in the making of large steel doors for industrial purposes, Lupton has recently placed on the market doors for airplane hangars. They have been carefully designed to fill the requirements of the airplane industry and are made in accordance with our industrial door standards.

Construction

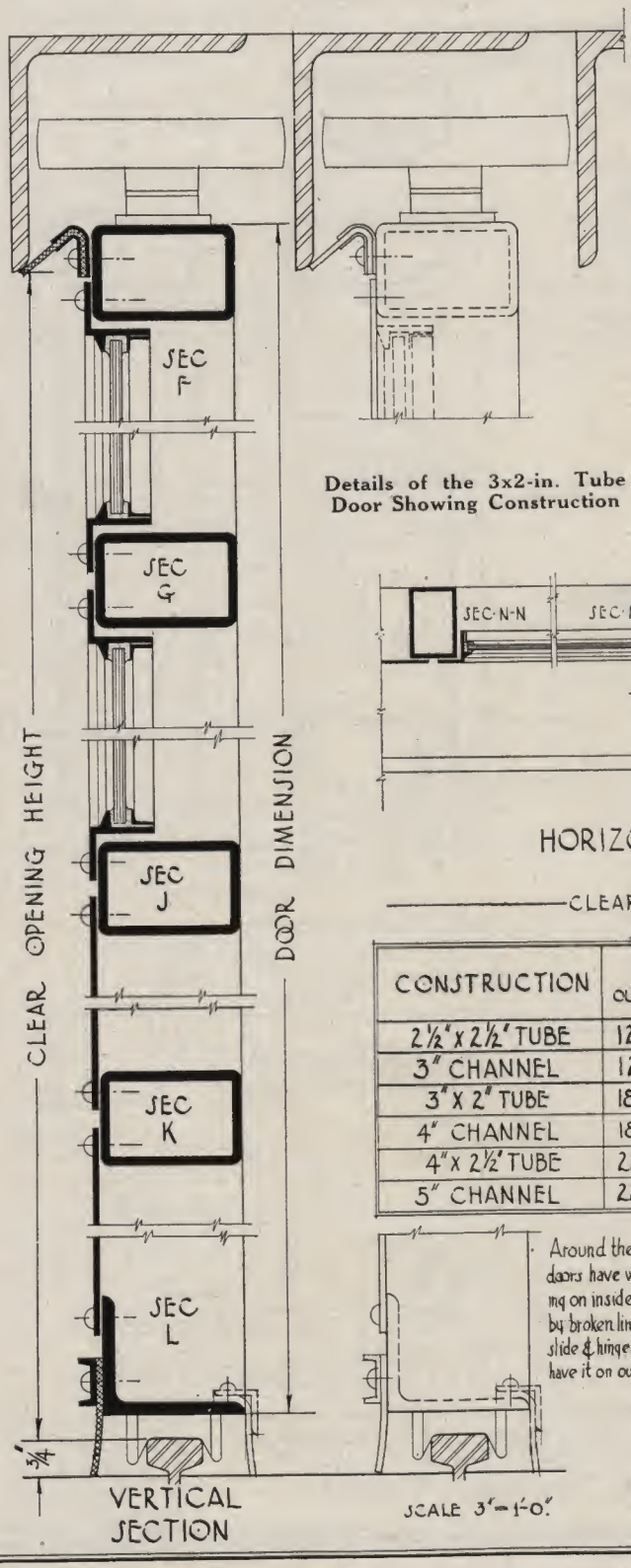
Doors are made in two types—Seamless steel tubing or structural steel channel section. Each type is available in three sizes of section corresponding to certain limits in height of door. All joints in frame members are solidly welded and surfaces ground flush. Glazing panels are standard steel window units with glazing stops. All lights are 14x20 in. glass.

Hardware

All doors are equipped with Allith-Prouty hardware. Rollers for slide doors have Timken bearings with Alemite fittings and are designed to fit 16 lb. ASCE rails. Slide doors are equipped at the top with two guide rollers. Cane bolts are furnished on slide doors and a cremone bolt is furnished for hinged end doors. Bumpers and door stops are furnished at ends of tracks. Slide doors are equipped with a Hand Pull for convenience in operating.

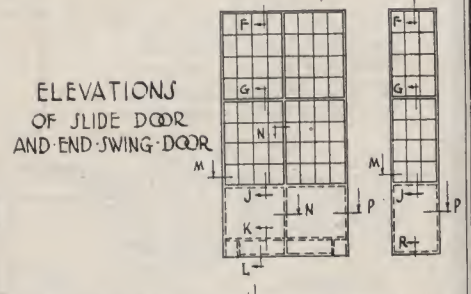
Pilot Doors

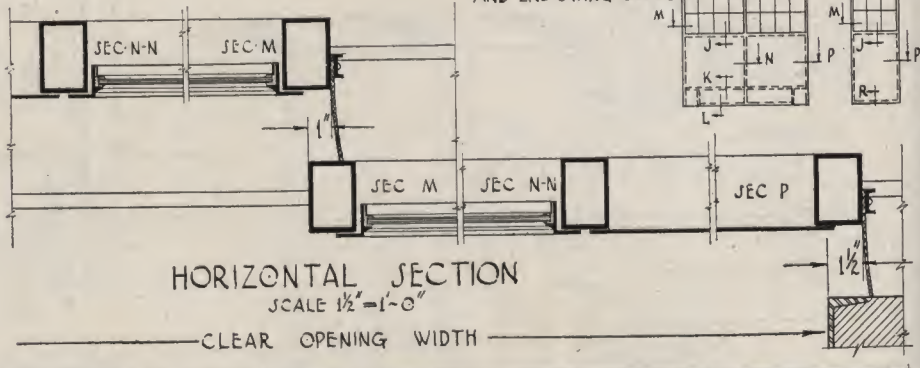
Where required Pilot doors are furnished, made of 1½x2⅝ in. steel tubing and equipped with cylinder lock.



VERTICAL SECTION

Details of the 3x2-in. Tube Door Showing Construction





HORIZONTAL SECTION
SCALE 1½"=1'-0"

CONSTRUCTION	HEIGHT OUT-TO-OUT-OF-DOOR	ACTUAL WIDTHS FOR NOMINAL 10'FT·WIDE·DOORS	ACTUAL WIDTHS FOR NOMINAL 4 FT. WIDE DOORS	CENTER TO CENTER OF TRACK
2½"x2½" TUBE	12'-0" to 18'-0"	10'-3½"	4'-0¾"	5¼"
3" CHANNEL	12'-0" to 18'-0"	10'-1½"	3'-10¾"	6"
3"x2" TUBE	18'-6" to 22'-0"	10'-2"	3'-11¾"	6"
4" CHANNEL	18'-6" to 22'-0"	10'-2"	3'-11"	7"
4"x2½" TUBE	22'-6" to 30'-0"	10'-3½"	4'-0¾"	7"
5" CHANNEL	22'-6" to 30'-0"	10'-2¾"	3'-11¼"	8"

SCALE 3"=1'-0"

BOTTOM RAIL OF HINGED END DOOR

· NOTES ·

In finding widths of openings add ½" between doors on same track and subtract 1" for overlapping of doors on adjacent tracks. Standard overlap at jamb for slide doors is 1½" as shown in detail.

Continued on next page

LUPTON COMMERCIAL STEEL DOORS

Lupton Commercial Steel Doors are designed for use in private and public garages, manufacturing plants and similar buildings, where inexpensive steel doors are desirable. Stiles and rails are made of 18 gauge steel plate with the corners welded. The lower panel is 16 gauge steel plate and the upper section is arranged for glazing. Two types of doors are available, swing and slide. Sizes are shown below, details are on next page.

Frames—Are furnished for swing doors only and only when specified on order. Specify by mark number given in table.

Hardware—Hinges for swing doors and tracks and hangers for slide doors are furnished with the doors. All other hardware must be specified by number on order if wanted.

Drilling, etc.—Swing doors are drilled for hinges and when mortise lock No. 97 is ordered the doors are mortised and drilled to receive it. All other drilling must be done in the field.

Shipping—Single doors with frames are shipped assembled in the frames. Double doors are shipped separately from frames.

Glass—Glass sizes are given in the table. Orders for doors do not include glass, but we furnish the necessary glazing members. Glazing should be done after the doors are erected.

When Ordering—Give the symbol numbers and quantities of units required and indicate whether swing or slide. If swing doors are ordered indicate swing of door (see sketch on page 83). If frames are required give symbol number and quantities. Specify the symbol numbers of hardware required and we will furnish the proper quantity to fill out the order. See list and illustrations on this page.

Hardware List

Following is a list of hardware which can be furnished on order. See illustrations on this page. Specify items by the numbers.

For Swing Doors

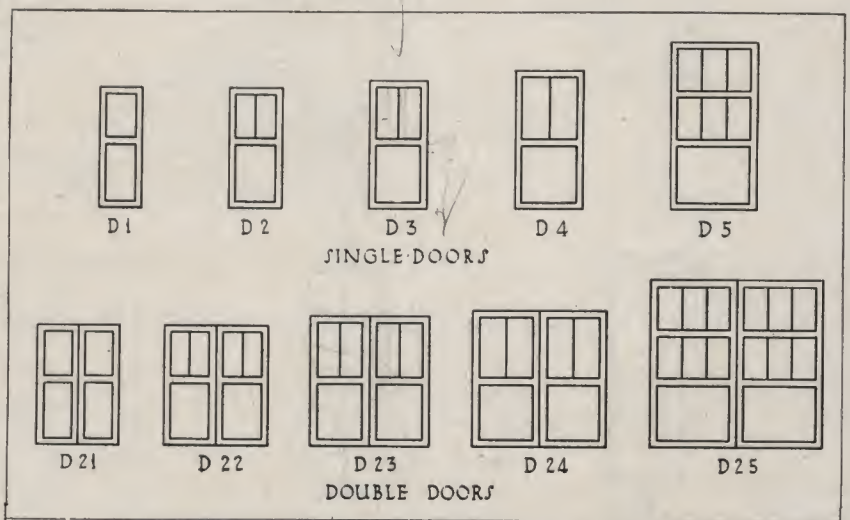
No. 97 Mortise Cylinder Lock.
No. 98 Lever Latch and Padlock Bracket.
No. 99 Offset Hinge.
No. 100 Top and Bottom Bolt Assembly.
No. 101 Hook-Back and Ring Assembly.

For Slide Doors

No. 102 Track Bracket.
No. 103 Track, 6, 8, or 10 ft. long.
No. 104 Trolley Bracket.
No. 105 Trolley.
No. 106 Stay Roller.
No. 107 Center Guide and Stop.
No. 108 Door Stop
No. 109 Inside Handle.
No. 110 Outside Handle.
No. 111 Hasp and Staple.

ASTRAGALS FOR EITHER TYPE DOOR

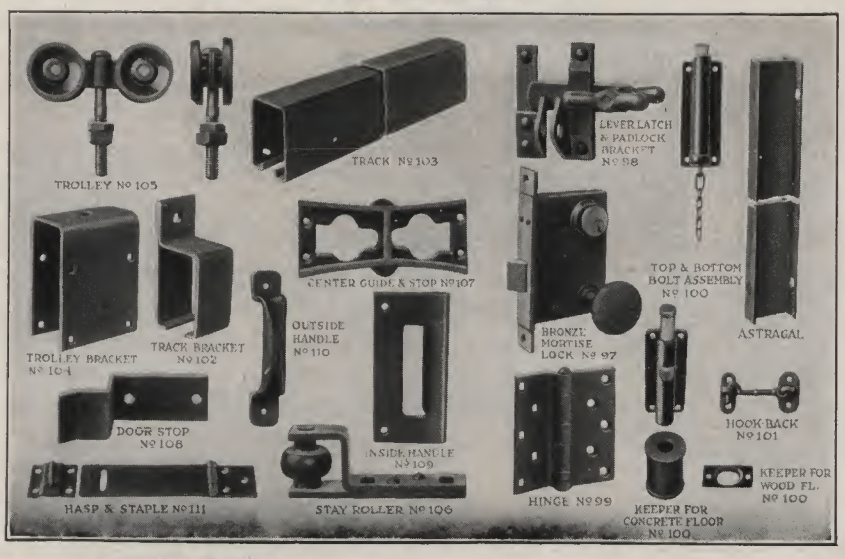
Swing doors		Slide doors	
Astragal number	Opening height	Astragal number	Opening height
2392	7'-0"	2414	6'-10½"
2393	7'-6"	2415	7'- 4½"
2394	8'-0"	2416	7'-10½"
2395	10'-0"	2417	9'-10½"



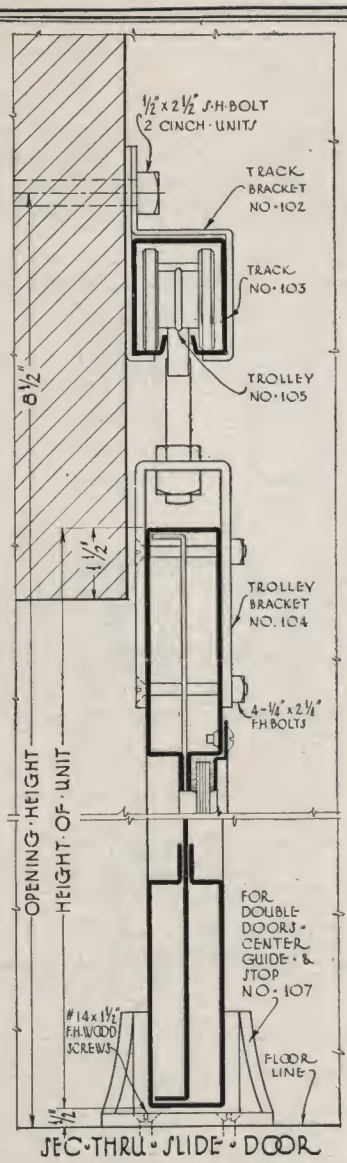
STANDARD SIZES

DOOR MARK	SLIDE TYPE: DOOR FRAME MARK	SLIDE TYPE: OPENING WIDTH	SLIDE TYPE: OPENING HEIGHT	SLIDE TYPE: CATALOG NO. OF ASTRAGAL	SWING TYPE: OPENING WIDTH	SWING TYPE: OPENING HEIGHT	SWING TYPE: CATALOG NO. OF ASTRAGAL	BOTH TYPES: GLASS SIZES
D-1	DF-1	2'-3"	6'-10½"		2'-6"	7'-0"		1 - 19⅞" X 30½"
D-2	DF-2	2'-9"	6'-10½"		3'-0"	7'-0"		2 - 12⅝" X 30½"
D-3	DF-3	3'-3"	7'-4½"		3'-6"	7'-6"		2 - 15⅝" X 36½"
D-4	DF-4	3'-9"	7'-10½"		4'-0"	8'-0"		2 - 18⅝" X 42½"
D-5	DF-5	4'-9"	9'-10½"		5'-0"	10'-0"		6 - 16¼" X 30¾"
D-21	DF-21	4'-9"	6'-10½"	#2414	5'-0"	7'-0"	#2392	2 - 19⅞" X 30½"
D-22	DF-22	5'-9"	6'-10½"	#2414	6'-0"	7'-0"	#2392	4 - 12⅝" X 30½"
D-23	DF-23	6'-9"	7'-4½"	#2415	7'-0"	7'-6"	#2393	4 - 15⅝" X 36½"
D-24	DF-24	7'-9"	7'-10½"	#2416	8'-0"	8'-0"	#2394	4 - 18⅝" X 42½"
D-25	DF-25	9'-9"	9'-10½"	#2417	10'-0"	10'-0"	#2395	12 - 16¼" X 30¾"

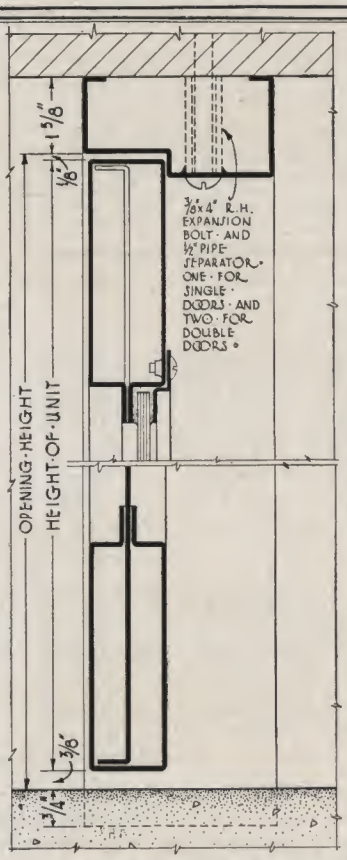
HARDWARE



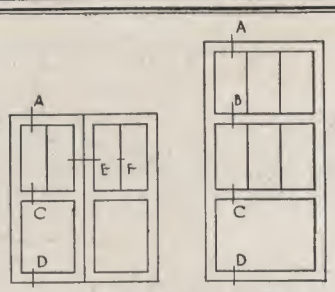
Continued on next page



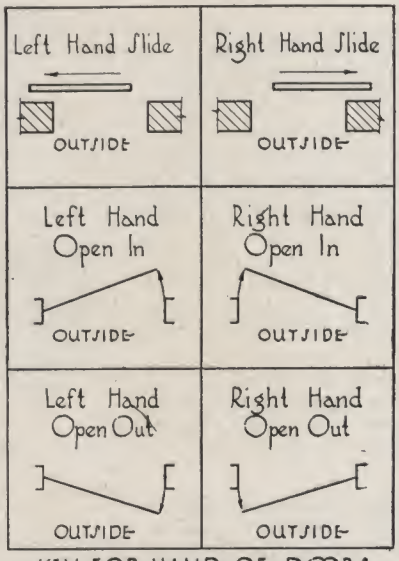
SEC. THRU SLIDE DOOR



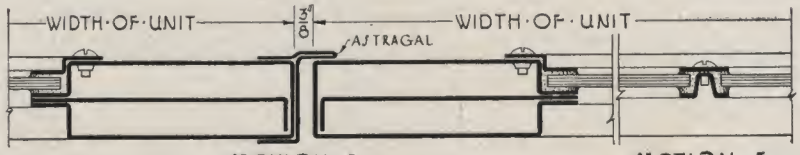
SECTION THRU SWING DOOR



TYPICAL ELEVATIONS

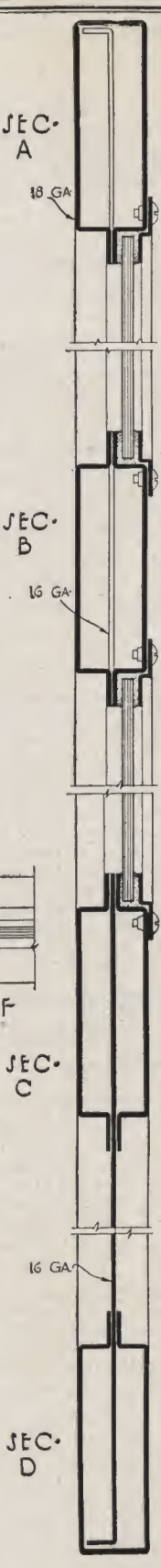


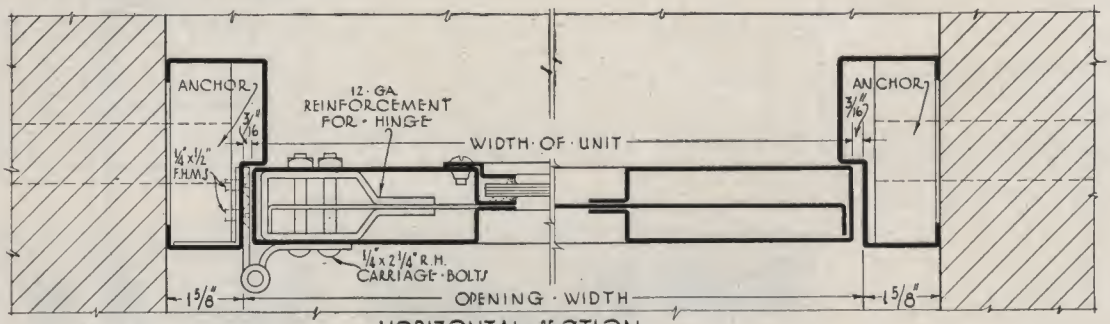
KEY FOR HAND OF DOORS



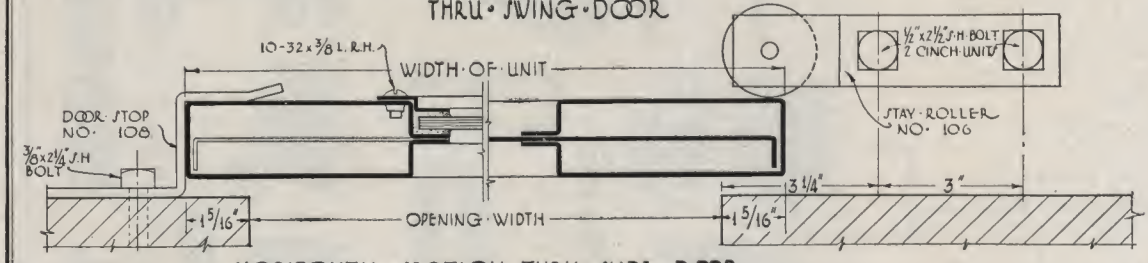
SECTION E MEETING STILE

SECTION F MUNTIN





HORIZONTAL SECTION THRU SWING DOOR



HORIZONTAL SECTION THRU SLIDE DOOR

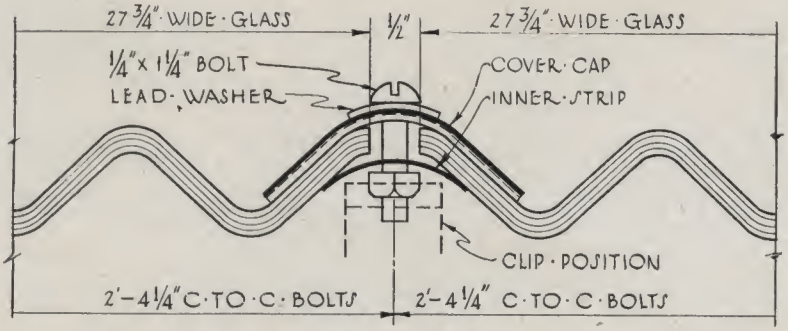
SCALE FOR DETAILS 3" = 1'-0"	DETAILS FOR LUPTON COMMERCIAL DOORS	SHEET NUMBER J - 1 JUNE 1929

Continued on next page

CORRUGATED WIRE GLASS SKYLIGHT

Manufactured by Pennsylvania Wire Glass Company

Solves Skylight Problems



TYPICAL SECTION THRU JOINT

Briefly

Corrugated Wire Glass is a translucent roofing material which transmits a finely diffused, shadowless light. It possesses great strength and span, coupled with unusual flexibility, and is easily formed into a completely weather and dustproof construction. It is used as an entire roof-covering wherever daylight is required; in skylights and in sidewall construction. It can be furnished in either White Glass or Actinic.

Corrugated Wire Glass has greater strength under an equally distributed load than any other sheet glass of equal thickness. Its great strength lies in the corrugation of the sheet and not, as many suppose, in the wire embedded in it. The wire is present simply as a fire retardant. The glass is made by the Pennsylvania Solid Process and meets with every requirement of the National Board of Fire Underwriters for fire retardment.

Application

Corrugated Wire Glass has been adapted to, and is used in nearly every form of roof construction where daylighting is required. It is applied directly upon steel or wood purlins or curbs, and on concrete. No supplementary frame is used.

Weather Tightness

Since this whole skylight construction is so flexible the idea may be formed that it cannot be weather-tight. Such is not the case. Again, the form of the sheet, to many seems to indicate that it cannot be formed into a water-tight skylight. Its appearance is against it; yet that very feature, its corrugation, makes the properly installed Corrugated Wire Glass skylight the most weather-tight skylight construction on the market. It is easily formed into a completely weather and dustproof construction.

The corrugations of the glass act as drains which quickly conduct water off, and at the same time they prevent wind from pushing water ahead of it and piling it up against the joints and causing leakage, as in the case of flat glass.

The sealing of the openings at the eaves and ridge, caused by the corrugation of the glass, would ordinarily be the most difficult places to make tight. This is easily accomplished by the use of asphalt-block sealing strips. These corrugated strips are made to fit accurately for the width of each sheet of glass, and, when bedded in a specially prepared sealing compound, they insure a tight skylight.

Where Corrugated Wire Glass joins or meets roofing of a different nature, special flashings and cover caps are formed to suit conditions. Since the glass has been used in conjunction with roofing, presenting almost every conceivable condition, these flashing problems have been solved and the manufacturers have no hesitancy in saying that Corrugated Wire Glass can be employed wherever it is possible to place a flat roofing material.

Economy

Corrugated Wire Glass is the "cheapest in the long run" glass construction.

It successfully withstands breakage due to contraction and expansion, and vibration.

There is no upkeep expense required for painting of parts, re-puttying, etc. A properly set Corrugated Wire Glass skylight using copper cover caps and brass bolts, may be forgotten once it is in place in the roof.

It will not leak under the most severe weather conditions.

It transmits a maximum of shadowless light for a given area. It tends to be self-cleaning because most of the dust and dirt collecting on the glass slides into the valley of the corrugations where it is washed out by rain. The deep corrugations break up the direct light and diffuse it to such an extent that a "shadowless" light is afforded.

Continued on next page

OTHER LUPTON PRODUCTS

Not Listed In This Catalogue

LUPTON STEEL SHELVING

Lupton Steel Shelving solves the ordinary storage problems and can be readily adapted to take care of the most unusual requirements. Made in Open and Closed types for storage and in Display Type for stores.

TEXTILE MILL EQUIPMENT

Realizing the need for textile equipment that would reduce fire hazards, damage to goods from rough edges, and cost of maintenance, Lupton has produced a complete line for the textile mills.

That it is successful is proven by the long list of prominent manufacturers that have installed Lupton Equipment.

HARDWARE STORE EQUIPMENT

The maximum in service, storage space, and display value. Display Tables, Counters, Units combining display and storage, Merchandisers—anything needed to make a hardware store neat, inviting and brimming with sales appeal.

LUPTON DETENTION WINDOWS

A window designed for jails or asylums where the detention principle is a necessary combination with proper light and air.

PARTITIONS

Two types of Steel Partitions are built by Lupton. One type combining good looks, finish, durability and interchangeable unit construction is ideal for the well dressed office, while another type less expensive, but possessing equal strength and flexibility, is especially suitable for factories, etc.

FACTORY EQUIPMENT

A complete line of factory equipment is manufactured by Lupton. Included in this line are Work Benches, Shop Desks, Tool Cabinets, Work Tables and Bench Legs.

SHEET METAL PRODUCTS

In addition to the many other products, Lupton produces a line of sheet metal products that is nationally used. Gutters, Pipe, Circles, Hooks are among the items put out by this division of Lupton's.

ALUMINUM WINDOWS

by

LUPTON

Lupton announces to the Architectural Profession that they are prepared after years of experimentation and research, to make their window products in Aluminum. Consult the Lupton Representative.